# The Iron A

### A Review of the Hardware, Iron and Metal Trades.

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#### The Bollmann Metal Grinding Machine.

We show in the accompanying engraving a machine for grinding and dressing metal objects, designed by a French mechanic, Bollmann.

The carriage, L, on which the work is fixed, receives reciprocating motion by means of gearing moved about the axes, H, and governed by a toothed wheel having a hand brake. This toothed wheel receives motion at M from the driving pulley. The lifting and lowering of the carriage is effected by the wheel D. The small hand wheels, B and C, on the left serve to produce transverse motion of the carriage, and to regulate, by means of a spring and friction brake, the pressure with which the work is held against

The latter has a sheet-iron cap, S, and a wrought-iron guard to prevent accidents in case of its rupture. The movement of the carriage is such that the object is always pre-sented before the wheel which rotates at the average velocity of 5760 feet per second. A second stone may be added at G, on the same spindle, being received between the flanges, for use on small work.

The remaining features of construction will be readily understood from our engrav-

ing.

The working parts are fastened to the iron bed, which is securely bolted to the standards. Bolts or screws, which can be readily removed, hold the machine firmly in place to

#### Scientific and Technical Notes.

Attempts to economize in fuel and labor in brick making have been frequent and in some cases highly successful. Recently A NEW BRICK KILN

was tried at Normanton, England, which possesses a series of novel features. The kiln is 108 feet long and 8 feet broad. The raw bricks are set direct from the making machine upon iron wagons, which carry them through the entire length of the new kiln and bring them out at the exit end baked. The fires are placed in the middle of the kiln, at each side, and the draft of hot of the kiln, at each side, and the draft of hot air travels toward a flue or chimney at the entrance end. By this means the bricks are gradually baked before reaching the fires, and after passing the intense heat of the central control of the central c tral section they have time to cool before being drawn out at the receiving end, where the burnt bricks can at once be thrown into carts and railway wagons or stacked. The barrows, of which nine are in the kiln at one barrows, of which nine are in the kiln at one time, are coupled together, and the action of drawing one out advances each of the succeeding eight a stage, while at the same time pulling in a newly loaded one at the other end. Each wagon holds about 5000 bricks, making 45,000 in the kiln at once, or a total weight of about 300 tons. The wagons are made so as exactly to fit the breadth of the kiln, and, excepting the usual spaces left. made so as exactly to fit the breadth of the kiln, and, excepting the usual spaces left for the equal penetration of the heat through the entire mass, the bricks are piled upon each wagon to a hight of 7 feet, thus filling up the whole space of the arch through which they pass. The iron of which the lower parts of the wagons are composed is preserved from injury through the heat, not only by the fires being on a higher level, but only by the fires being on a higher level, but by a superposed layer of fire-bricks, and by a current of cool fresh air which passes under the wagons. By means of Mr. Foster's present appliances, which may be still further improved, a load of 5000 finished bricks can be drawn out in five minutes; but a period of four or six hours in the kiln in results of the bricks was expected. is required before the bricks are sufficiently ned and then cooled enough to be taken
It is said that the cost of fuel for burning 1000 bricks by this new process is under 6 cents, and certainly the utilization of heat seems to be in every way complete

Zsigmondy Brothers have sunk A DEEP ARTESIAN WELL

at Pesth, Austria, for the municipality, who at Pesth, Austria, for the municipality, who desire to furnish the city with an abundance of hot water for the public baths and other purposes. The depth of the well is now 2097 feet, the temperature of the water reached being 161° F. The well now furnishes 173,800 gallous of hot water per day, which rises to a hight of 30 feet. This amount of water is not only sufficient for the requirements of the city, but will also transrequirements of the city, but will also transform the surroundings of the well into a sort of tropical garden. The well is to be sunk deeper until water as hot as 178° F. has been reached. The city pays the contractors reached. The city pays the contractors \$200,000 at the completion of the well.

Mr. Ch. Tellier, a French engineer well known by his efforts to produce low temperatures cheaply, has communicated to the Academy of Sciences his discovery of the valuable properties of

TRIMETYLAMINE AS AN AGENT OF REFRIGERA TION. Trimetylamine has been extracted in large quantities by Mr. Camille Vincent, from the residuary liquors of the distillation of the syrup of beet roots. As it boils at a temperasyrup of beet roots. As it boils at a tempera-ture of 18° F., under ordinary pressure, its vapor requires only 2 to 3 atmospheres for condensation. This property will permit in many cases the utilization of waste heat or of exhaust steam, reducing the cost of manu-facture to little more than the expense of watching the apparatus, so that it is stated one ton of ice would not cost more in France than 2 to 2½ francs. Although the odor of trimetylamine is very disagreeable, the

aluminous slate, have lately commenced to put the pure

ANHYDROUS SOLID SULPHUROUS ACID
on the market. It is put up in tightly-soldered tin boxes, which were found to answer best, because at ordinary temperatures sulphuric anhydride is without action upon metals, and particularly upon tin. This form of acid is very useful, and its transportation by far less risky than when shipped in a liquid form. The constantly growing production of artificial Alizarin has been some of these he has presented to the Yale Museum.

Prof. Forbes, of the Andersonian College, Glasgow, gives an interesting account of the use of the Morse alphabet. It is believed that the person who first used a thermo-electric current with a telephone was Prof. Tait.

Messrs. Stoeckin & Vetillart have recently applied

A NEW SYSTEM OF PILE DRIVING.

While engaged in the work of enlarging the harbor of Calais, they found great difficulty in sinking the piles and plankings through the fine, moist beach sand. The use of water

owing to the the low pressure; besides, it possesses great affinity for hydrochloric acid, which thus may serve as a means of neutralizing escaping vapor.

Stark's extensive sulphuric acid works in Bohemia, which produce the Nordhausen sulphuric acid on a very large scale from aluminous slate, have lately commenced to put the puro

served from scale during the entire time when acted upon by the tale, but as soon as its use was discontinued a scale was pro-duced at the end of less than one month. The tale acts entirely mechanically, presenting by its foliated structure a large surface for the deposit of the salts, and sliding down the sides of the boiler with greater facility than the sales of the boiler with greater facility than the clay sometimes used for the same purpose.



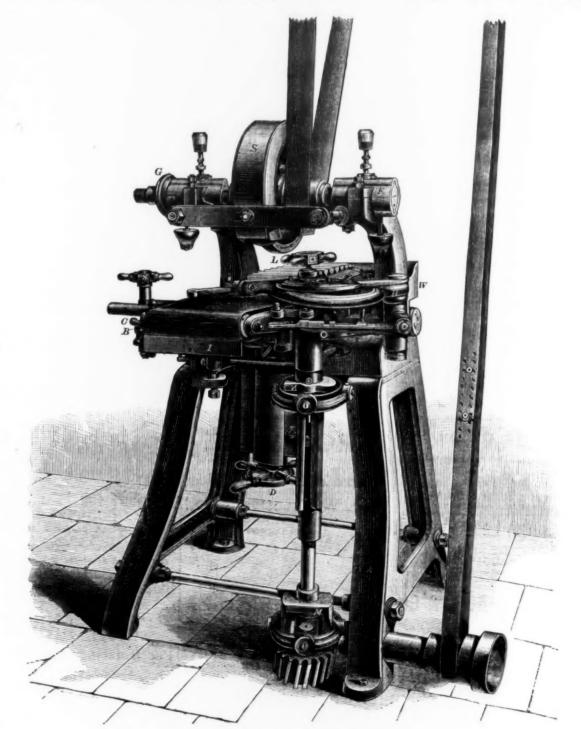
The Journal de St. Petersbourg reprints from the Russian official Indicateur du Ministère des Finances the particulars of the import and export trade of the empire for the past year, some epitome of which is worth past year, some epitome of which is worth giving. As regards imports, we find the account almost throughout unfavorable compared with that of 1876. Russin last year imported less sugar, tea and coffee, almost no wine, little tobacco, less raw cotton, and a much smaller quantity of all kinds of woven fabrics than in 1876. The only article which shows a slight increase is steel rails, of which 187, 200 tons were imported. of which 187,200 tons were imported, against 174,600 in 1876; but this increase is more than counterbalanced by the decreases in all other kinds of iron. With trifling exceptions the list in short shows a decreased trade throughout. This is only what we might expect when the strain what we might expect when the strain which has been on the nation is taken into account, and when it is remembered that the Black Sea ports were closed for the greater part of the year. Unfortunately no values are given, so that an average esti-mate of the money decrease cannot be stated. The export side of the account gives also such indications as the state of the country and of its foreign exchanges would lead us to expect. In spite of the blockade and of the appropriation of many of the rail-ways for government traffic, the exports of last year are greater in bulk than those of 1876. Russia has even managed to export more of nearly all kinds of corn, the total more of nearly all kinds of corn, the total exports being 22,846,000 bushels, against 18,439,000, or an increase of say about 3,000,000 imperial quarters. Linseed and hempseed, spirits and brandy, raw and refined sugar, tobacco, sheep and goats, flax, tallow, hemp and some kinds of cloth have also all been exported in increased quantities. The increased export of raw sugar is specially remarkable when taken in conjunction The increased export of raw sugar is specially remarkable when taken in conjunction with the fact that in ordinary times Russia is a considerable importer. The figures are 66,200 tons, against 9000 tons in 1876. It appears from the account, as a whole, that Russia has been compelled to send everything out of the country which it was possible to send; and although it is so far a satisfactory sign for the time bein that she has been able to do without much of what she usually imported, and to sen! of what she usually imported, and to sen! away a greater proportion of her surplus raw produce, we fear the process is not one that can continue. So violent a reversal of the character of her trade must to no small extent indicate a process of exhaustion. If Russia is to maintain her credit abroad, however, she must continue for a long time to come to export much more than she imports. Her enormously depreciated paper. ports. Her enormously depreciated paper currency would also tend to force this course upon her traders, and when to this is added her heavy debt obligations abroad, there is no possible escape from it. The danger of no possible escape from it. The danger of such a situation, however, is that the country may not be able to continue to export so much in excess of the imports. A lop-sided trade account of this kind must place a nation like Russia at a great disadvantage in competing with other nations which are capable of paying for large imports as well as of large production, and it is therefore by no means unlikely that one is therefore by no means unlikely that one immediate consequence of the costly war with Turkey will be a general decline and prolonged derangement of Russian foreign

In the recent great fire in Philadelphia. the greatest obstacle met by the fire department in successfully battling the great fire was the weakness of their hose, which burst cracked and unseamed from the pressure of water. For several years the Philadelphia fire commissioners have given out their hose contracts to the lowest bidder, and the result has been that utterly worthless hose has been saddled on the department for service. eventual loss of \$2,000,000 of property may teach the lesson that should have been learned long ago, that the best hose is the cheapest, and none but the best should be allowed in fire service. At this fire several times—and at critical times, too—the hose had to be detached and new lines substituted. a delay which in one instance resulted in a total stoppage of the apparently successful efforts being made for the saving of a build-ing on Cherry street, and which unquestion-ably was the cause of that building's destruc-

The question as to what is to become of the Tale as an Anti-incrustator.—Recent unemployed coal miners if the anthracite experiments made in France by Mr. Michard and Mr. Lory, of the Grenoble detection is to remain at so low a figure as and and Mr. Lory, of the Grenoble detection is to throw a large proportion of the men out vapor requires only 2 to 3 atmospheres for condensation. This property will permit in many cases the utilization of waste heat or of exhaust steam, reducing the cost of manufacture to little more than the expense of watching the apparatus, so that it is stated one ton of ice would not cost more in France than 2 to 2½ francs. Although the odor of trimetylamine is very disagreeable, the leakage of the apparatus will be but slight,

nearly vertical. Numerous seams of coal body of a person who held one end of the body of a person who held one end of the wire in each hand, and still the effects were faintly audible. Here the galvanometers which was still in circuit, hardly gave any indication. In these experiments only one standstone. In the latter it is found in huge than 2 to 2½ francs. Although the odor of trimetylamine is very disagreeable, the leakage of the apparatus will be but slight,

These caves are coated with



THE BOLLMANN METAL GRINDING MACHINE.

Andes, at an altitude of 14,700 feet above the sea and 4000 feet above the town of Huall-anca. The region was reached after an arduous journey across the Andes from the port of Casma; in the course of it, it was necessary to cross several parallel ranges, one of them 16,800 feet in altitude, and another 17,200 feet. The silver mines lie in the heart of a coal formation which has been upheaved so that the strata now stand nearly vertical. Numerous seams of coal

ences in the temperatures of the different junctions in the circuit were sufficient to generate feeble electric currents only just perceptible with the mirror galvanometer. These were easily detected by aid of the rasp These were easily detected by aid of the rasp and the telephone. Even when contact was simply made and broken with the hand, a click was heard in the telephone. These feeble currents were rendered still more insignificant by passing them through the body of a person who held one end of the wire in each hand, and still the effects were faintly audible. Here the galvanometer, which was still in circuit, hardly gave any indication. In these experiments only one telephone is used, viz, at the receiving end. Employed in this way, with a powerful cur-

chiefly the cause of this innovation, it being | drawn along the rasp a hearse croaking was | to facilitate the penetration of broken iron chiefly the cause of this innovation, it being well known not only that large quantities of funing sulphuric acid are required for its preparation, but also that the yield and quality of the product depend upon the degree of cencentration of the oxidizing agents.

Mr. Henry Sewell, a well-known mining engineer, has recently visited the famous MINERAL CAVES OF HUALLANCA, PERU.

Mr. Henry Sewell, a well-known mining engineer has recently visited the famous upon the eastern flank of the Peruvian Andes, at an altitude of 14,700 feet above the sea and cooffect above the term of the visit of the producing caves are situated upon the eastern flank of the Peruvian Andes, at an altitude of 14,700 feet above the sea and cooffect above the term of the visit of the producing caves are situated upon the eastern flank of the Peruvian Andes, at an altitude of 14,700 feet above the sea and cooffect above the term of the visit of the respectation of broken iron piles, suggested its use on the outside and in advance of the wooden logs that they were suited into the current was rendered intermittent by the file, and the sound was most distinctly heard.

A Thomson reflecting galvanometer was introduced into the circuit, which showed that the currents were extremely small. In order to try the feeblest attainable currents that the requiring on an average of 185 blows was required to drive a pile, 900 blows for a panel, requiring, on an average, 8 hours 36 the thermopile was removed, and without any artificial application of heat it was shown to 50, the mean time being only 1 hour 9 the sale and in the telephone. Then a thermopile was lowed to the current was rendered intermittent by the file, and the sound was most distinctly heard.

A Thomson reflecting galvanometer was introduced into the circuit, which showed that the currents were extremely small. In order to try the feeblest attainable currents were extremely small. In the telephone. Then a thermopile was lowed to the circuit, which showed the sale was loosened and held in susp minutes; many of the panels required only from 14 to 16 minutes, and the longest time was only I hour 45 minutes. The extraction of displaced or broken piles or planking, which has hitherto been attended with great difficulty, is accomplished with the greatest ease by the new system.

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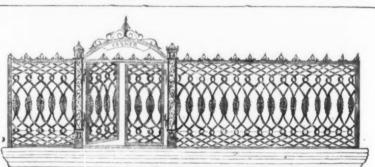
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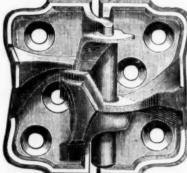
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THE CELEBRATED DECOY TRAP.

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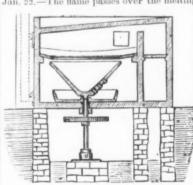
#### New Patents.

We take the following abstract of new patents, recently issued, from the official

ROLL FOR ROLLING METALS. To David Jones, Youngstown, O .- Jan. 22. A roll for rolling metals, which consists

of a east-iron body and wrought iron or steel collars, said collars secured to the body in the process of casting the latter.

SEPARATING MOLTEN METAL. To F. J. Seymour, Wolcottville, Conn.— Jan. 22.—The flame passes over the melting



hearth, or down through the central opening therein, and around the melting pot at will. The metal melts, and runs down through the central opening in the concave hearth into the melting pot, where it is kept molten by the flame surrounding the pot. A vertical jolting motion is given the latter as it revolves. The molten metals arrange themselves according to their specific gravities, and are tapped off into the trough. The heat is regulated so as to melt the more fusible metal first, &c.

I The described method of separating metals, which consists in subjecting a

metals, which consists in subjecting a molten mass of the combined metals in a containing vessel to a jigging or settling mo-tion, whereby the metals are arranged ac-cording to their relative specific gravities, and may be separately drawn off.

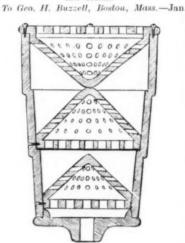
2. The combination, with a pot for melted metals and a shaft for sustaining the same,

of the gearing for rotating the pot, and the cam teeth for raising the pot and allowing

can teeth for raising the pot and allowing it to drop.

3. The inclined hearth of the reverberatory furnace, having a bottom outlet or opening, in combination with a collection pot located beneath said opening, a chamber beneath the hearth containing said pot, and flues and dampers, substantially as set forth, whereby the furnace flame is either conveyed over the hearth to the chimpey, or down through said hearth to the chimney, or down through said hearth and around the pot.

DEVICE FOR ABSORBING THE NOISE OF ESCAP-ING STEAM.



22.—The silencer absorbs the noise of escaping steam, and may be attached to the ex-haust steam pipe of railway car brakes or

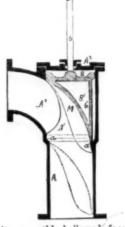
1. The case or shell of increasing area, in ombination with a series of perforated diaphragms and gones.

The combination, with a shell or case of a silencer, of a series of cones, perforated as described

3. In a silencer, a cone perforated with holes running at right angles to a line drawn longitudinally through the center of the case.

STOP VALVE.

To Jus. T. Fifield, Brooklyn, N. Y.—Jan.
29.—1. The valve B, having the extension

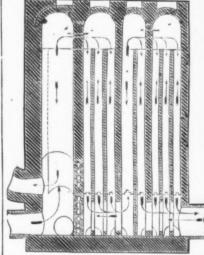


form a smoothly-curved passage for the

2. The chamber A1, larger than the pipe 2. The chamber A', larger than the pipe A, in combination with the branch or arm A', and with the valve B, having a wedge-like extension, B', of smaller diameter, adapted to move in part A, and allow the main body B to come to a tight bearing on the annular seat a.

The pipe A, smaller than the chamber A', and provided with the projection a', in combination with the branch A' and valve B, having the groove b' and hellowed surface M, substantially as described.

APPARATUS FOR BEATING AIR AND GASES. To Thos. Whitwell, South Stockton, England.—Jan. 22.—The heating apparatus (through which the burning gas and the air or gas to be heated pass alternately, in op-



posite directions, in contact with the same surfaces) constructed with transverse vertical walls or partitions, crossing from side to side, and arranged in series or sets, forming divided passage ways, which are con-nected with each other alternately at top and bottom, and extend across the apparatus, whereby friction is lessened, while heating surfaces of the width of the apparatus are provided.

FIRE-PROOF COLUMN.

To Peter B. Wight, Chicago, III.—Jan.
20.—1. In a fire-proof column constructed as described, the protecting gores B, provided with the grooves b.



The combination of the grooved gores

The combination of the grooved gores with the continuous flange a.
 The combination of the grooved gores Band continuous flanges a, when constructed and arranged as described, with the grouting material filling the interstices between the same, for the purpose of securing the gores firmly in place.
 The combination of the cementing material with the gores B and the continuous I-shaped flanges, when arranged to fill the space between the same out or near to a line with the exterior surfaces of the gores.

with the exterior surfaces of the gores.

#### Illuminating Factories by the Electric Light.

In the works of the Union Screw Company, on Case avenue, Cleveland, a few evenings ago, a party of ladies and gentle-men assembled to witness the trial of an electric light. The apparatus employed was invented by Mr. Chas. F. Brush, of Cleve-land. It consists of a Brush dynamo-electric machine of 12,000 candle-power, arranged to give four separate currents, each running an electric lump of 3000 candle-power. Two of the lamps were placed on the third and two on the fourth floor of the immense building, and when the engine was started up the machine started at the same time, and, with-out the slightest manual interference, the out the singuest manual interference, the lamps flashed out their light in all its magnificence. The effect was most brilliant. The rooms were flooded with a pure white light like the light of the sun, and its treamed out at all the windows, illuminating houses and streets for a long distance in every steady, free from the flickering that used to be an accompaniment of electric light, and, considering the enormous illuminating power, the light was unexpectedly soft and endurable to the eyes. An opportunity was afforded to test the character and whiteness of the light. Worsteds, scarfs, afghans, &c., of brilliant shades were hanging against the wall at one side of the room, and it was noticed that the colors were brought out as clearly as by the full light of the sun. Esti mates were made as to the amount that the light furnished by this apparatus would cost, if used by the screw company as it was used on this occasion, and it was ascertained that on this occasion, and it was ascertained that the total cost of the whole light from the four lamps, including the items of consumption of carbon in the lamps, interest on the in-vestment, and wear and tear, would not exceed 30 cents per hour. The light produced was photometrically equal to 800 gas burners, burning 5 feet of gas per hour each. This amount of gas would cost \$3 per hour. The great saving is at once apparent.

French Coal Mining .- The production of French Coal Mining.—The production of coal in the French department of the Nord in 1877 was 3,216,939 tons, as compared with 3,303,006 tons in 1876. The number of workmen employed in coal mining in the Nord in 1877 was about 20,000, of whom 14,000 were in the service of the Anzin Company alone. The cost of raising each ton of coal in the Nord in 1867 was 8/10 per ton; the selling nrice ranged during the year. B', with its smoothly-hollowed face M, in combination with a pipe or fluid passage, A, and angular arm or bend A<sup>2</sup>, adapted to as compared with 3,336,768 tons in 1876, Fron.

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MIDVALE STEEL WORKS

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#### The New Baxter Portable Engine.

Mr. William Baxter, well known as the inventor of the "Baxter" engine, has just completed a new portable engine and boiler which we illustrate upon this page. The engine is of one horse-power, and is complete with boiler, feed pump, steam gauge, gauge cocks, governor, &c. The boiler consists of two cast-iron boxes connected by large tubes. Inside of these vertical tubes are smaller ones of wrought iron, lap welded, and put in with an expander, through which the gases and smoke pass up to the chimney. The fireinventor of the "Baxter" engine, has just completed a new portable engine and boiler which we illustrate upon this page. The engine is of one horse-power, and is complete with boiler, feed pump, steam gange, gauge cocks, governor, &c. The boiler consists of two cast-iron boxes connected by large tubes. Inside of these vertical tubes are smaller ones of wrought iron, lap welded, and put in with an expander, through which the gases and smoke pass up to the chimney. The firebox, which is surrounded by water, is in the lower box. The construction is made plain by a glance at the engraving. The engine is attached to the side of the boiler, the shaft running directly across the lower part between the tubes. The valve is of the pattern known as therotary D-valve. The eccentric which drives it is also made to drive the pump which is situated just below it. The cylinder is fastened directly upon the upper portion of the boiler. The guides are formed of two round rods projecting from the cylinder cover on each side of the connecting rod. The base on which it stands is 2 feet square,

THE NEW BAXTER PORTABLE ENGINE

have made 13 pairs of type setting and dis-tributing machines for a New York printer, under the direction of an expert employed for the purpose. The machines are at work in New York, and are reported in general

time that the machines will work, and the preef is, they are working

#### Portable Cylinder Borer.

the stuffing box by screwing up a nut on the extremity. If it is impracticable to use the stuffing box as a guide, the stuffing box as a guide, there is an expanding apparatus operated by a cam which is applied directly to the bottom of the cylinder and supports the end of the bar, as before. An adjustable bracket carries the driving gear and the attachment for the power, which may be a hand crank for small jobs, but on large work it is a pulley driven by any convenient power or by a small portable engine. When this bracket is in the required position it can in the required position it can be clamped firmly in place as be clamped firmly in piace as-leng as necessary. On top of the bar is a casing contain-ing the feed gear, which may be changed to increase or diminish the feed, or reverse it, by shifting an intermed-iate in a manner similar to a lath.

The readiness with which the apparatus can be applied is remarkable. We had the pleasure within a few days of personally witnessing its operation on the high-pressure cylinder of the steamer Indiana. of the American line ana, of the American line. This being a 57-inch cylinder it required a tolerably heavy bar, &c., yet within an hour or two from the time it was laid on board it was set and ready for a cut, and the work went on in the most regular

went on in the most regular and steady way.

The expense, difficulty and, it might almost be said, utter impracticability of moving large castings of this kind, which have also to be carefully reset, make a portable apparatus like the one mentioned an indimensable rewho red an indispensable requisite of modern advance-ment in mechanical appli-ances, and, while it performs so important a function in this

and the whole machine is a feet high. There is a rocking grate for the furnace and the usual check and stop valves on the pump. The cylinder is 3x3 inches, which the manufacturer rates at one and a half to two horse-power. The entire weight is 650 pounds. In regard to the work which one of these engines can do, the Passaic (N.J.) Herald says: "We have a very heavy Cottrell & Babcock cylinder press of the largest size they make, and this little engine has run this press ten hours on a scuttle of hard coal."

We believe the engine also drives a "Gordon" press as well. This illustrates very well the power of the engine. The manufacturer is

press as well. This illustrates very well the power of the engine. The manufacturer is Mr. J. C. Todd, the successor of the well-known firm of Todd & Rafferty, of Paterson, New Jersey. The New York office is at No. 10 Barclay street.

Type Setting Machines.

The Pratt & Whitney Company of Harts the property termed. It has been known for years that a large percentage of the metal was thus lost by its being sublimed and passing off into space. The White Lead Company was organized for the purpose of catching this smoke and by passing it through an almost endless line of pipes of sheet iron and woolen hazs to condense it. The Pratt & Whitney Company of Hartford, says the Boston Commercial Bulletin,
ford, says the Boston Commercial Bulletin,
threugh an awoolen bags to condense it.
The result was that after an outlay of many thousand dollars and a year's experimenting smoke, or lead fumes, into metallic lead, the same as steam is converted into water. in New York, and are reported in general terms to behave themselves satisfactorily. The distributer occupies a space about five feet square and three high. The sotter is a little larger. The complexity of each is alarming, the nicety of detail required is disheartening, but the perfection of the accomplished fact is amazing. For example, in the distributor there are 200 little blocks of steel, each a complex machine by itself, and difference for the machine is a bluish, implicable powder, which makes a splendid blue paint, pronounced equal to the corroded article. For the purpose of making it white several furnaces were built, and the blue product, with the aid of an immense heat, is again changed into lead furnes, the converted into water. in the distributor there are 200 little blocks pure white lead. In the transforming of of steel, each a complex machine by itself, and differing from the other like Yale lock keys, traveling around a race course, where 100 of them (continually dismissing one does not be the continually dismissing one).

keys, traveling around a race course, where too of them (continually dismissing one and taking another) must always occupy 30 inches precisely. Variations of one one-thousandth of an inch in their thickness would be fatal to their usefulness. So far as appears the machines ought to succeed. The Hartford Courant inquires concerning them: For what price can they be sold? How much skill does it require to run them? How much skill does it require to run them? The world in the Latter, written from a British standpoint by Earnest Seyd, a distinguished writer on economic questions, and published in the Journal of the Society of Arts. Mr. Seyd predicted that the demonetimation of silver by Great Britain would bring calamity upon the country, and machines.

So much money has been spent in an apparently bottomless pit in search of machines

would bring calamity upon the country, and in the present paper Mr. Seyd sees all his parently bottomless pit in search of machines parently bottomiess pit in search of machines of this class that practical printers look with incredulous pity upon one who says he has found the secret, as upon one who says he has squared the circle, started perpetual motion or found the philosopher's stone. They are quite willing to promise anything upon the condition that a good machine shall be brought along. They think it like contracting to take an unlimited quantity of green cheese when the inventor shall have got hold of the moon. But they do say this got hold of the moon. But they do say this tion.

Fron.

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Exclusively for the

Analysis of Ores of Iron, Pig and Manufac tured Iron, Steels, Limestone, Clays, Slags and Coal for Practical Metallurgical Purposes.

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For each additional constituent of usual oc-

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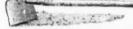
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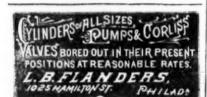
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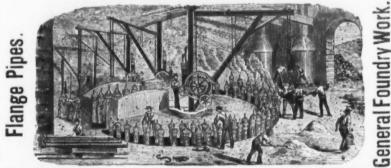
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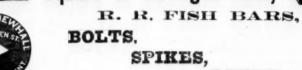
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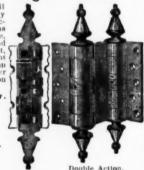


Centennial Spring Hinges. This Hinge has two flat springs, very powerful It has at solld puttal, giving much less tion than a hollow pintal. It at solid bearings in the km

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Weston's Differential

Coal Washing in the South.

A correspondent of the Nashville Ameri-an sends the following from Helena, Ala-

bama, under date of April 15: Last October, Col. J. W. Sloss, president, and James Thomas, general superintendent, of the Eureka Company, of Oxmoor, Ala., were at Pittsburgh, Pa., to see the working of some coal-washing machinery in opera-tion at that place, and, after a careful ex-amination, concluded to erect Mr. S. Stutz's coal washer, as being the best in the market. About a month later the inventor of the machinery came here to see the location of the mines, &c., and together with the super-intendent selected a place immediately op-posite the company's coke ovens. The ma-chinery is now in full operation and proves as great a success in cleaning the Alabama and from its immediately operation. oal from its impurities as it does in Pitts burgh.

The annual meeting of the stockholders The annual meeting of the stockholders was held at Oxmoor on the 10th inst., and they repaired en masse to Helena to witness the working of the machine. They were satisfied that it would perform all that was claimed for it. The apparatus is not a crude idea enveloped in a maze of machinery, but the result of many years of labor and observation, coupled with the skill and experience of a mining and mechanical engineer. The whole of the machinery is composed of two distinct parts—the crusher and gineer. The whole of the machinery is composed of two distinct parts—the crusher and the separator. The former is located on the second floor just above the separator box, and has for its object the preparation of the material by crushing the larger pieces of coal to a uniform size of from one-eighth to one-fourth of an inch, according to the quality. There is no revolving drum to classify the various sizes of coal and feed them into corresponding washing boxes, as used in the old washing machinery, nor is them into corresponding washing boxes, as used in the old washing machinery, nor is there any kind of scrapers to deliver the separated coal out of the box. All is done at one operation, and in the most simple manner possible. The slack coal, which is brought by the railroad to the works, passes, previous to its introduction into the separators, through the crusher. The latter is of a peculiar construction and has two pairs of rolls; the upper pair is corrugated, to break the lumps, while the lower rolls are smooth. for the purpose of reducing the coal to small for the purpose of reducing the coal to small pieces. On leaving the crusher the whole mixture of fine coal and slate slides down mixture of fine coal and slate slides down an inclined plane to the rear end of the separator sieves. These, two in number, are made of brass wire, and are 3x4½ feet. The box of the separator is constructed of 3-inch boards, and the separation, based on the principle of the difference in the specific gravity of coal, slate, sulphur, &c., can be called almost an absolute separation of the carbon from the impurities.

carbon from the impurities.

An elevator provided with buckets takes the washed coal away as it comes out of the separator and carries it up to a trestlework, over which it is conveyed to the coke overs.
From 200 to 300 tons of slack can be handled and washed per day by the machinery, at a cost of from one to two cents

Although the coal mined by the Eureka Company is not an impure coal, it contains a considerable quantity of slate, coming mostly from the roof and bottom of the vein, and some sulphur. The greater part of the latter is deposited in the shape of fine leaves and here in part of the latter is deposited in the shape of fine leaves ter is deposited in the shape of fine leaves and less in pyrites. The work of separating this sulphur from the coal has heretofore been a matter of much difficulty, which, however, seems to have been thoroughly obviated by this machinery, which is the invention of Mr. S. Stutz, a mining and mechanical engineer of Pittsburgh. The coke manufactured from the washed coal is hard and resonant, of pearly a silvery color and

return they were accompanied by D. Dunn. It being late in the day, they struck across the country, hoping to reach the Silver King and Globe trail before dark. All four were mounted. While forcing their way through the brush, along the middle fork of Pinto Creek, at a point some three and a half or four miles north of Andy Hawkin's Pinal ranch, and some 16 miles west of Globe, one of the party dismounted. He soon cried out, "Boys, here's gold!" At first the others "Boys, here's gold!" At first the others thought he was joking, but his persistence caused them to turn back, when, sure enough, there were the richest auriferous float and croppings perhaps ever discovered. Closely examined, this rock is found to be thoroughly decomposed quartz, held together by a perfect sponge of fine wire gold. Oxidation

the croppings of the float alone will make the boys rich. The excitement in that country is now immense, and prospecting has received a fresh impetus. Almost the entire water-shed of Pinto Creek and its branches is covered with dense thickess of entselay and similarly subhara thickess. and similarly stubborn bushes. This fact has heretofore proved a barrier to thorough prospecting. The four discoverers of the \$44,500 benanza are D. Dunn, who used to be a contractor at San Francisco, but new a resident of Los Angeles; C. Hayes, formerly head clerk at the Russ Heuse, San Francisco; C. E. Burk, a former resident of Yuma, and later an active prospector and worker of mines at the Laguna and clse-where, and Col. S. A. Buckingham, who tells us he took out the Seventh New York Volun-teers (not the Seventh New York Militia) in 1861. Col. Buckingham came to California about a year ago, and to Arizona nearly two months ago. Since that time he has been examining mines in Pinal county, and has bonded eight which he hopes to dispose of in San Francisco.

#### South American Trade.

A correspondent writes as follows to the

There appeared lately in some of our daily onpers short extracts of a communication to our State Department on topics touching our commercial relations with South Amer-ica, to which our great Centennial Exhibition in 1876 had given a new impulse, and drawing at the same time the attention of our Spanish American neighbors to us and our manufactures, while it stimulated a re-markably warm desire on our part to fully open to us the boundless markets of our own continent of nations from whom we draw immense supplies, products exclusively of their soil, paying them back in our precious metals for much the larger amount, while European countries actually clothe them, feed them, and supply their wants and luxu-ries. Germany, England, and France have done this for many a decade, by sail, ere steam came into use, and by numberless steam craft since monopolizing even their coasting trade—in fact, the shores of eur own continent; but this has been the wise policy of European governments, compared to a picayune system as mapped by ours. England, Germany and France have not only opened a gulf that swallowed up all the over-produce of their mills and factories, but also carried back in their hulls the exchanged treasures that enriched their merchants and traders, while we stood listlessly and care lessly by, seeing the caravans of foreign na-tions carry these harvests from our own continent away from our shores, past our very

It is a well-known fact that our South American neighbors never were—are not now—manufacturers or producers, and will not be for some long time to come; and the lively exertions lately put forth on our part to win their trade will, with a little perseverance, gradually accomplish this desirable result, not only by the invincible basis of superior and much cheaper goods, but of superior and much cheaper goods, but also by opening their eyes to the wholesome profits which they have heretofore
been wont or were compelled to pay to
Europe for inferior goods, under a faint
inducement of four or even six months'
credit, and a charge of apparently only
2½ per cent. commission to serve as a
pious cover for supposed honest dealing.

No merchant the wide world over who

No merchant the wide world over who

this sulphur from the coal has heretofore been a matter of much difficulty, which, however, seems to have been thoroughly obviated by this machinery, which is the invention of Mr. S. Stutz, a mining and mechanical engineer of Pittsburgh. The coke manufactured from the washed coal is hard and resonant, of nearly a silvery color, and surpasses, in its freedom from sulphur and ashes, the best "Connellsville" cake.

Parties desiring more information about coal washing might do well to consult The Metallurgical Review, Vol. I., David Williams, New York, in which several articles with numerous illustrations have been published.

Rich Gold Discoveries in Arizona.

Great excitement is being created in the Territory by the discovery of extremely rich gold ledges in Pinal county, Arizona. The Yuma Sentinel, whose editor, Mr. George Tyng, is very well informed, says of the discovery of ore assaying \$44,500 per ton:

It has actually been found in considerable quantity; we have seen the certificate of assay which gives the value in gold as \$42, 873, and in silver \$1649.43. Selected specimens shown us could assay three times as much, as they contained at least one-third of 873, and in silver \$1649.43. Selected specimens shown us could assay three times as much, as they contained at least one-third of their weight in gold. The discovery was accidental, and occurred in this wise: On February 4th Col. S. A. Buckingham went out to look at, with a view to bond or purchase, certain mines located in Pioneer District, in Pinal county, owned by Buck & Hayes, who accompanied him. On their return they were accompanied by D. Dunn. It being late in the day, they struck across verance will we conquer the markets of our South American Continent, and we are known not to fail in what we undertake

The world will soon measure its time by the standard of American watches and chronometers and eat its meals with American knives and forks, because our watches are more reliable and our entlery more pleasing to the eye and the purse alike; but we intend to be fairly remunerated for our labor and to see our commission merchants paid the full commission due to them.

The contractors of the Madeira and Mamore Railroad, to which the Metropolis was carrying supplies when she was wrecked eff fect sponge of fine wire gold. Oxidation of its silver alloy has so discolored the gold that it might escape a casual glance, but the least friction reveals its true character. Specimens broken from the ledge carry their normal color, and are brilliant with gold. The ledge occurs on the side hill, about 500 feet above the bed of the creek, which carries a constant stream of pure fish-supporting water. It has been traced for a great distance, and ten locations, of 1500 feet each, have been made upon it.

We shall soon learn whether this bonanza is a mere freak of nature, or really a mine that carries ore of the unprecedented value of over \$40,000 per ton. But, in any event, stand the climate better than the whites.



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Air Filters and Moisteners, placed over hot-air registers of furnaces, &c., prevent am filtered air. Prices and discounts to the trade sent on application. the "Economy" Molding Weather Strip is perfect in try respect. By enlarging edge of rubber or fell, and

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Endorsed by the leading millers and manufacturers in the country. No Con-RS TO CATCH; requires less power to run; will throw clean every time; made of the st charcoal stamping iron, and positively indestructible; cost about the se in or sheet from square buckets. Ask your nearest Mill Furnishing House or Mill-wright for them. We carry a stock of 20,000 of these buckets and can fill orders immediately. Purchasers are cautioned against buying any other spherical bucket, samples furnished. Address

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FILES AND RASPS Every File warranted.

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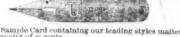
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Are Hammered Hot,

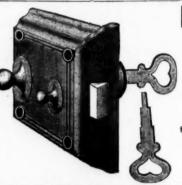
And the Finishing and Pointing are Done Cold,

Thus Imitating the Process of Making Nails by Hand.

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KINC'S PATENT, June 26, 1877.

Cylinders adjustable for doors from 11/4 inch

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# Copper and Iron Tacks, Tinned Tacks, SUPERIOR SWEDES IRON TACKS

For Upholsterers' Use, Saddlers' Supply Card, Clothing, etc., etc.

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Zinc and Steel Shoe Nails, Carpet, Brush and Gimp Tacks, Common and Patent Brads, Finishing Nails, Annealed Trunk and Clout Nails, Hob and Hungarian Nails, Copper and Iron Boat Nails,

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#### FINE TWO PENNY & THREE PENNY NAILS,

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Any variations from the regular size or shape of the above-named goods made from sample to order. E

ANSONIA

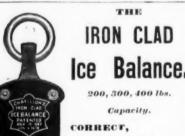
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PATENT APPLIED FOR.

# Machinery

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COMPACT,

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NOT LIABLE TO GET OUT OF ORDER Universally Approved

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MEASURING TAPES. Of Cotton Linen and Steel.

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Of various kinds. Clark's Shatters are the Hest and Cheapest in the world. Are fitted to new Tribune Buliding, Lenox Library, Delaware and Hudson Canal Co.'s Bailding, Transatlantic Steamship Co.'s new Dock, American News Office, &c., Posey County Court House, Mt. Vernon, Holt County Court, Oregon, Mo. Also to buildings in Boston, Cascinnati, Detroit, Janesville, Wis., Baltimore, Canada, &c., Have been for years in daily ase in every principal city throughout Europe, and are incorsed by the Leading Architects of the World.

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The low price, superior quality and fine nish of this Platform will be readily acknowliged. Packed 24 in a case. send for price list.



# The Portable Bronzed Fire Screen or Shield, as shown in the illustration, is especially designed for the safety and protection of walls, forniture, woodwork, paper or variesh from heat. Being constructed of metal, with firm and substantial edges, curved in form to stand alone, it may be easily adjusted to any position about a stove, before a grate or fire place. The demand for something useful, durable and ornamental as a Fire Screen has long been felt, and having finally accomplished the esired result, we are prepared to fill all orders promptly.

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Coil, Cable, Crane, Railroad, Wagon and Agricultural Chains, From Best Standard Brands of Iron.

Our Chains are all thoroughly tested and warranted, and will be found equal to the best of either home or foreign make

Prices the very Lowest.

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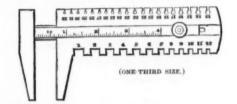
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Illustrated Catalogue sent per mail on application,

#### British Iron and Steel Institute.

Mr. C. H. Halconto, of Sheffield, read the following paper ON RAILWAY JOINTS

If we go back in the world's history about half a century, we shall find the railway system in its early infancy, and engineers devising a railway track, in the hope that they would pass carriages over it at a pace say of 15 or 20 miles an hour. What sort say of 15 or 20 miles an hour. What sort of a foundation would first occur to the mind of an engineer as the proper one for the track! The answer to this question is solidity. He would devise, by the best means in his power, a solid foundation upon which to place his iron rails, and stone would at once come to his aid. Now let us push on the history of the world till we have got to the year 1878, and what a marvelous advance has been made in the science of locomotion! Step by step with the progress locomotion! Step by step with the progress of railway speed has taken place the move-ment of the engineer from the idea of solidity to that of tight-rope elasticity; and I be-lieve I am right in saying that the thing which an engineer at the present time most desires is a tight rope suspended from John-o'-Groat's to Land's End. These 50 years of railway life have produced considerable success toward the attainment of this tight-rope principle. Railway sleepers, instead of running longitudinally with the rails, are now laid transversely. Stone beds are a thing of the past; and probably it is not too much to say that every difficulty has been overcome save one, namely, the connection of the rails with each other so as practically to make them one. The engineering mind has been directed to the solution of this problem for many years past, and when the of railway life have produced considerable problem for many years past, and when the fish-plate was introduced success seemed to have been attained in a high degree; but since the birth of the fish-plate the pace of the railway engineer has increased, and with that pace has come such an irritation upon the best devised fish-plate that its life at best is but of short duration.

Let us look for a moment at one of the best of the fish-plates. It can only be connected to two rails by means of four holes, four bolts and four nuts. Now view one of our modern railway engines followed by two or three Pullman cars, and let the pace be 50 miles an hour. Watch the effect upon the fish-plate. The pressure is immense upon the four bolt holes. The best of iron and the best of steel can only resist for a time; friction takes place, and the effect of the friction is intensified by every train that passes over the rails, until, ultimately, there passes over the rails, until, untilitately, there is such an amount of wear and tear in holts, holes and fish-plates that they have to be entirely renewed. During the short life of this model fish-plate it has had daily nursing; the nuts must be constantly watched, and the watchman must have with him the means to screw up the fish-plate and keep it

in condition. in condition.

I have said nothing as to the chairs in which the rails are seated, or of the plugs or bol s by which these chairs are fastened to the sleepers; but in passing I may just remark that, although the first effect of what I call the irritation of an express train is developed in the bolt-holes and bolts of the fish-plate, the secondary symptoms are also fish-plate, the secondary symptoms are also developed on the bolts and plugs which connect the railway chair to the sleeper; and any one who has seen a sleeper stripped after a few years' work will know how irritantly the bolts have all worked to pro-

duce looseness, destruction and decay.

In a mile of single track railway, the rails being 24 feet in length, there are 1760 boltholes in the rails, 1760 bolts for the fishplates, 1760 nuts, 14,080 bolts and plugs for the chairs. These constitute an army of little imps, whose set purpose it is to create all the mischief possible, and upset, if they all the mischief possible, and upset, if they can, trains carrying the most precious freights. This leads me now to speak of an invention, the result of which I hope will be comparative destruction of the imps aforesaid, and therefore greater safety to Her Majesty and all her loyal subjects.

The Acaster rail joint—what is it! It is an application of the simple mechanical principle of the wedge, and its perfection (excuse the term) arises from its simplicity. It consists of two wedges with roughened

It consists of two wedges with roughened edges, grooves being cut in the foot and un-der the head of the rail. It is easy to drive incline, for the rails to be drawn out of the joint. I have myself watched the effect for the last eight months upon the Midland Railway, and have found that the joints put down there in August last now remain exactly as first put down, so that I may say there has not been the slightest movement of the parts inter se. The test of these eight months really means in my view that the joint is so perfect that it makes the rails into one solid whole, while at the same time the rails have power to expand or contract without in any degree loosening the joint. I summarize my paper under the six following heads:

I. No nuts and bolts to screw up. 2. No

wear and tear from friction. 3. An elastic, continuous, smooth-running surface is obtained. 4. The joint is made of steel, and can be made as strong, durable and elastic as the rail. 5. Saving in cost when maintenance and wear and tear are taken into account. 6. No necessity for the sleepers being elacted vectors are the points than in

placed nearer together at the joints than in the center of the rail. In conclusion, I beg to be allowed to say that after having given many months of thought to the joint which I have introduced to your notice, I assure you its value has grown upon me day by day; and in addition to the comfort which will be introduced in

STATISTICS RESPECTING THE PRODUCTION AND DEPRECIATION OF RAILS

The length of railway lines opened in the entire world in 1850 was 18,000 miles; in entire world in 1850 was 18,000 miles; in 1860, 63,600 miles; in 1870, 127,000 miles; and in 1875, 176,400 miles. We thus see that during the last-mentioned period the increase has been at the rate of 10,000 miles per annum. If we take the same rate of increase from that date we find at the beginning of 1878 the mileage will be 366.000. ginning of 1878 the mileage will be 206,000 miles, 17,000 miles of which are in the United Kingdom alone. I have dealt with these separately, because they are mostly double lines, and laid with heavy rails.

Total mileage of the world..... Deduct for the United Kingdom To which add for sidings, stations and double

Total miles outside the United Kingdom. The 17,000 miles of railway in the United Kingdom are taken as being double. Many are, I admit, single lines, but there are others having four lines, which, with the additions for stations and sidings, it is estimated will bring up the total to that of a double line throughout, or equal to about 34,000 miles of single road. Collieries, mines and private lines make also an addition of 12½ per cent. more. And if we take the average weight of the rails at 118 tons per mile, we find the total weight of rails to be about 4,500,000 tons now in use in the United Kingdom.

Taking the 238,000 miles above quoted at 108 tons per mile we get the total tonnage of rails in the world as under:

The average life of a rail is calculated at

require then for replacement each Tons year.

For the 10,000 miles of new railway laid
down each year, as before shown, at 108
tons per mile.

For private lines, mines, collieries.

Total annual requirements.. 4,110,400 The make of iron and steel rails in all ountries, as far as I have been able to

ascertain, is as follows Inited States of America. Belgium Breat Britain, exports for replacement new railways All other countries

I have shown, then, that the real healthy emand under ordinary conditions ought to be something like 4,110,000 tons per annum; and that the total make of rails in all countries is only about 2,745,000 tons per annum. There is, therefore, a deficiency in the demand, or, in other words, orders are kept back equal to 1,365,000 tons per annum.

I have endeavored in the forecasting forces

I have endeavored in the foregoing figures rather to underestimate than otherwise, but should they in the main be correct, it shows this very important and very interesting fact, that orders are not coming forward as they should do, chiefly, I suppose, because during times of depression railway com-panies withhold renewals as much and as long as possible, and, consequently, sooner or later there must be a general rush into the later there must be a general rush into the market. This being the case, it is evidently the true policy of every railway company to purchase while rails can be had at a favorable price. The obvious result from such a course would be that trade would be stimulated during a universal depression, and would relieve the demand, with all its evil consequences, when the rush comes.

Mr Wood then at length examines the various systems of iron sleepers for permanent ways, comparing them with wooden ones. He points out that in England the

ones. He points out that in England the substitution of iron for wood will open a large market to iron manufacturers

#### Probable Applications of the Phonogragh.

Thomas A. Edison, the famous inventor of the phonograph, recently contributed to the North American Review an interesting account of the probable applications of the phonograph, which, as their realization requires the exercise of mechanical ingenuity, being in contact with each other, their smooth surfaces in contact with the head and foot of the rail. The joint is 18 inches long, reaching, therefore, 9 inches on each rail; the teper is % inch in the 18 inches; the rails are grooved for 10½ inches at each end, so that it is impossible, on the steepest incline, for the rails to be decreased will command the attention which the great number of conjectural and prophetic opinions of enthusiasts threatened to usurp. Among the more important applications which Mr. Edison classes under "probabilities" the following may be mentioned: Letter-writing and other forms of dictation, books incline, for the rails to be decreased. and such electrotype applications as books, musical boxes, toys, clocks, advertising and signaling apparatus, speeches, &c. The signating apparatus, speeches, &c. The inventor is now perfecting an apparatus in mechanical detail which is to become the standard phonograph, and which may be used for all purposes except such as require special form of matrix, such as toys, clocks, special form of macrix, such as toys, clocks, &c., for an indefinite repetition of the same thing. The main utility of the phonograph, however, being for the purpose of letter-writing and other forms of dictation, the design is made with a view to its utility for that purpose.

The general principles of construction are a flat plate or disk, with spiral groove on the face, operated by clock work underneath the plate; the grooves are cut very about teachers. neath the plate; the grooves are cut very closely together, so as to give a great total length to each inch of surface—a close calculation gives as the capacity of each sheet of foil upon which the record is had in the neighborhood of 40,000 words. The sheets being only 10 inches square, the cost is so trifling that but 100 words might be put upon a single sheet without unduly increasing the expense. Still, it is problematical whether a less number of grooves per inch might not be the better plan—it certainly would for letters—but it is desirable to have only one class of machines throughout the world, and as very extended communications, if put upon one to the comfort which will be introduced in traveling by doing away with those little bumps which, on the best of lines, tell us when we pass from one rail to another, there will result, I hope, greater safety to the railway traveling community, which may nowadays be said to be everybody.

An interesting paper was read by Mr.

Charles Wood, on

# RUSSELL & ERWIN MANUFACTURING COMPANY

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WAREHOUSES: NEW YORK, 45 & 47 Chambers Street; PHILADELPHIA, 425 Market Street; BALTIMORE, MD., WM. H. COLE. Agent, 17 South Charles Street.

	IR	ON SCREW	S, Flat and	Round He	ead.		BR	ASS SCREW	S, Flat and Round	Head.
	FINCH.  Per Gross.  No. 7, \$ .26 8, .29 9, .31 10, .33 11, .35 12, .37  FINCH.  No. 4, .22 5, .24 6, .26 7, .28 8, .30 9, .32 10, .34 11, .36 12, .38 13, .44 14, .48 15, .56 16, .64  FINCH.  No. 5, .26 6, .27	7 INCH.  Per Groun. No. 14, \$ .50 15, .58 16, .65  1 INCH.  No. 5, .29 6, .30 7, .32 8, .33 9, .35 10, .37 11, .40 1243 13, .48 14, .53 15, .60 16, .68 17, .75 18, .84 20, 1.16  14 INCH.  No. 7, .37 8, .38 9, .40	14 INCH.  Per Gross.  No. 17, \$ .86 18, .94 20, 1.17  14 INCH.  No. 8, .43 9, .45 10, .47 11, .51 12, .55 13, .61 14, .70 15, .79 16, .88 17, .97 18, 1.05 20, 1.26  14 INCH.  No. 9, .52 10, .54 11, .57 12, .63 13, .70 14, .79	2 INCH.  Per Groms.  No. 10, \$ .57 11, .62 12, .71 13, .79 14, .88 15, .97 16, 1.06 17, 1.17 18, 1.26 20, 1.46 22, 1.69 24, 2.25  2¼ INCH.  No. 11, .71 12, .80 13, .89 14, .97 15, 1.06 16, 1.18 17, 1.26 18, 1.37 20, 1.57 22, 1.92 24, 2.50	2½ INCH.  Per Gross. No. 17, \$1.37 18, 1.46 20, 1.69 22, 2.10 24, 2.60  2¾ INCH.  No. 13, 1.06 14, 1.17 15, 1.26 16, 1.37 17, 1.55 18, 1.67 20, 2.00	4 INCH.  No. 18, 2.76 20, 3.46 22, 3.90 24, 4.30 26, 4.80  4½ INCH.	2, .59 3, .59 4, .61 5, .64 6, .68 7, .74  ½ INOH  No. 2, .59 3, .59 4, .61 5, .64 6, .68 7, .73 8, .79 9, .86 10, .95  § INCH.  No. 2, .60 3, .60 4, .62 5, .65	5, .67 6, .71 7, .76 8, .82 9, .90 10, .99 11, 1.09 12, 1.20 13, 1.35 14, 1.55 15, 1.80 16, 2.10	10, 1.15 11, 1.29 12, 1.45 13, 1.63 14, 1.83 15, 2.05 16, 2.35 18, 2.75  14 INCH.  No. 7, .90 8, .97 9, 1.15 10, 1.35 11, 1.55 12, 1.75 13, 1.95 14, 2.15 15, 2.35 16, 2.35 18, 2.75  18, 3.00 20, 3.50  No. 10, 2	Per Gross. 2.15 No. 18, \$4.7 2.42 2.75 2.20, 5.5 3.10 2.4, 8.0 3.50 4.00 12, 2.7 13, 3.1 14, 3.5 15, 3.9 16, 4.3 17, 4.7 18, 5.2 2.6 2.16 2.16 2.16 2.16 2.16 2.16 2.1
\$ INCH.  No. 2, .20 3, .20 4, .21 5, .22 6, .24	7, .29 8, .31 9, .33 10, .35 11, .38 12, .41 13, .46	10, .43 11, .46 12, .50 13, .55 14, .61 15, .70 16, .80	15, .88 16, .97 17, 1.06 18, 1.17 20, 1.34 22, 1.55 24, 1.85	2½ INCH.  No. 12, .89 13, .97 14, 1.06 15, 1.18 16, 1.26	26, 3.80 3½ Inch. No. 16, 1.88 17, 2.09 18, 2.34	6 Inch. No. 24, 6.75 26, 7.75 28, 9.05 30, 10.50	6, .69 7, .74 8, .80 9, .87 10, .96 11, 1.06 12, 1.20	1 Inch.	No. 8, 1.25 13, 2 9, 1.39 14, 3 10, 1.54 15, 3 11, 1.72 16, 3	2.18 2.38 3.77 18, 6.8 3.16 2.55 2.55 2.94 2.33 2.6, 16.0
	HEAD IRON, D HEAD IRON	N		JAPA	DISCO	UNTS.			CLAT HEAD BRASS,	
		.,	9			SCREWS	, on Iron		James, ,	
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\$ Inch.  Per Gross. No. 2, \$0.55 3, .55 4, .58 5, .60	½ I No. 3, 4, 5, 6,	.57 .60	§ INCH.  Per Gro  No. 4, \$0.5  5, .6  6, .6  7, .6  87	8 No. 1 4 9	Per Gross.	No. 6, \$0 7, 8, 9, 10, 11, 1	Pross.	Per Gross.  0. 6, \$0.70  7, .78  8, .87  9, .97  10, 1.10  11, 1.25  12, 1.40	Per Gross. No. 8, \$0.90 9, 1.08 10, 1.28 11, 1.48 12, 1.60 13, 1.88 14, 2.08	Per Gross No. 8, \$1.15 9, 1.28 10, 1.42 11, 1.58 12, 1.78 13, 1.98 14, 2.22
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#### ROUND HEAD NICKEL-PLATED SCREWS.

FLAT HEAD, . .

ROUND HEAD,

1	INC	н.		& INC	CH.		4 IN	CH.		INC	CH.	1	Inci	н.		14 IN	ich.	13 In	CH.		13 IN	NCH.		2  In	CH.	24 In	NCH.	2½ In	NCH.	23 I	NCH.
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	5,	.98	1	7,	1.30		8,	1.47		8,	1.53		8,	1.65	No	. 7,	1.88				17,	4.60		20,	6.50						
	6.	1.18		8,	1.44		9,	1.61		9,	1.68		9,	1.80		8,	1.94				18,	5.10									
*	7.	1.25		9,	1.57		10,	1.69		10,	1.75		10,	1.95		9,	2.05				20,	6.05									

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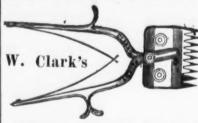
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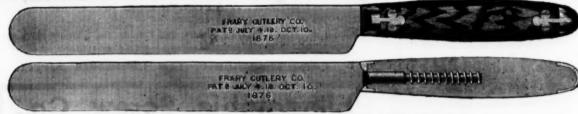
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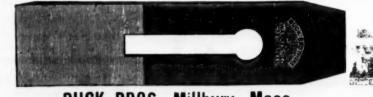
The above Illustrations represent their New Patent Screw Tang Lock Fast Solid Handle Knife.

There is no question but that a solid handle Knife is much more preferable than a scale tang. The great objection to their use hitherto is, that no solid wood handle has been placed on the market with the handle properly secured—no handle put on with cement will stand the wear and tear of every day usage. The cement will expand and contract with the action of heat and cold, and become loose, crack and come off, causing great projudice against their use. This objection is overcome in our patent screw tang. A wood screw is welded to the tang of the Knife or Forg, and screwed firmly and securely in the nun ile and looked there by the bolster, making a very strong next and handsome knife, which we warrant sever to get loose, crack or come off. We manufacture a large variety of patterns, both Table, Butchers and Carvers, and turnish the patent handle nearly as low as the scale tang. We are prepared to furnish this line of goods, together with the scale tang and iron handle, very promptly, and very respectfully invite the attention of the trade.

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Gouges of all lengths and circles, beveled inside or outside. Nati sets, Scratch and Belt Awis, Chise Handles of all kinds. Orders filled promptly; generally same day as received...

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honograph for communications is very sim ple. A sheet of foil is placed in the phono-graph, the clockwork set in motion and the matter dictated into the mouthpiece without graph, the clockwork set in motion and the matter dictated into the mouthpiece without other effort than when dictating to a stenographer. It is then removed, placed in a suitable form of envelope and sent through the ordinary channels to the correspondent for whom designed. He, placing it upon his phonograph, starts his clockwork and listens to what his correspondent has to say. Inasmuch as it gives the tone of voice of his correspondent it is identified. As it may be filed away as other letters and at any subsequent time reproduced, it is a perfect record. As two sheets of foil have been indented with the same facility as a single sheet, the "writer" may thus keep a duplicate of his communication. As the principal of a business house or his partners now dictate the important business communications to clerks to be written out, they are required to do no more by the phonographic method, and do thereby dispense with the clerk and maintain perfect privacy in their communications.

The phonograph letters may be dictated.

tions.

The phonograph letters may be dictated at home or in the office of a friend, the presence of a stenographer not being required. The dictation may be as rapid as the thoughts can be formed or the lips utter them. The recipient may listen to his letters being read at a rate of from 150 to 200 words per minute, and at the same time busy himself about other matters. Interjections, explanations, emphasis, exclamations, &c., may be thrown into such letters ad. &c., may be thrown into such letters ad libitum.

In quite another direction the phonograph In quite another direction the phonograph will perfect the telephone and revolutionize present systems of telegraphy. That useful invention is now restricted in its field of operation by reason of the fact that it is a means of communication which leaves no record of its transactions, thus restricting its use to simple conversational chit-chat, and such assignment and such assignments detailed the property decided by the property of the property decided by t and such unimportant details of business as are not considered of sufficient importance to record. Were this different, and our telephone conversation automatically recorded, we should find the reverse of the present status of the telephone. It would be expressly resorted to as a means of perfect record. In writing our agreements we incorporate in the writing the summing up of our understanding—using entirely new and corporate in the writing the summing up of our understanding—using entirely new and different phraseology from that which we used to express our understanding of the transaction in its discussion, and not infretransaction in its discussion, and not infrequently thus begetting perfectly innocent causes of misunderstanding. Now, if the telephone, with the phonograph to record its sayings, were used in the preliminary discussion, we would not only have the full and correct text, but every word of the whole matter capable of throwing light upon the subject. Thus it would seem clear that men would find it more advantageous to actually separate a half mile or so in order actually separate a half mile or so in order to discuss important business matters, than to discuss them verbally and then make an awkward attempt to clothe their understand-ing in a new language. The logic which ap-plies to transactions between two individuals in the same office applies with the greater force to two at a distance, who must discuss the matter between them by the telegraph or mail. And this latter case, in turn, is re-inforced by the demands of an economy of time and money at every mile of increase of distance between them.

"How can this application be made?"
will probably be asked by those unfamiliar
with either the telephone or phonograph.

with either the telephone or phonograph. Both these inventions cause a plate or disk to vibrate, and thus produce sound waves in harmony with those of the voice of the speaker. A very simple device may be made by which the one vibrating disk may be made to do duty for both the telephone and the phonograph, thus enabling the speaker to simultaneously transmit and record his message. What system of telegraphy can approach that? A similar combination at the distant end of the wire enables the correspondent, if he is present, to hear it while it is being recorded. Thus we have a mere passage of words for the action, but a complete and durable record of those words as the result of that action. Can economy of time or money go further than to annihiof time or money go further than to annihilate time and space, and bottle up for posterity the mere utterance of man without other effort on his part than to speak the

In order to make this adaptation it is only requisite that the phonograph shall be made slightly more sensitive to record and the telephone very slightly increased in the vibrating force of the receiver, and it is accomplished. Indeed the "Carbon Telephone," invented and perfected by Mr. Edison, will already well nigh effect the record on the phonograph; and as he is constantly improving upon it to cause a more decided vibration of the plate of the receiver, this addition to the telephone may be looked for coincident with the other practical ap-plications of the phonograph, and with almost equal certainty.

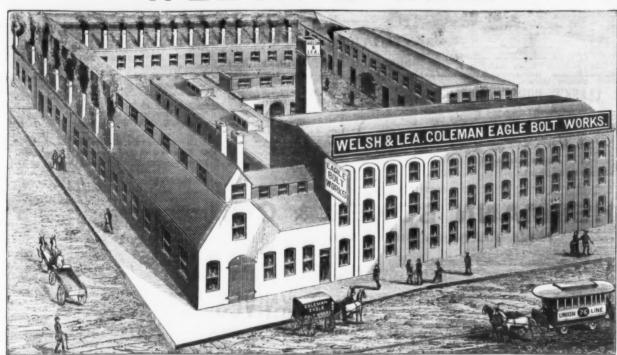
almost equal certainty.

The telegraph company of the future—
and that no distant one—will be simply an
organization having a huge system of wires, central and sub-central stations, managed by skilled attendants, whose sole duty it will be to keep wires in proper repair and give, by switch or shunt arrangement, proper at-tention to subscriber No. 923 in New York when he signals his desire to have private communication with subscriber No. 1001 in Boston for three minutes. The minor and totally inconsequent details which seem to arise as obstacles in the eyes of the groove-traveling telegraph man, wedded to existing methods, will wholly disappear before that remorseless Juggernaut, "the needs of man;" for will not the necessities of man surmount trifles in order to reap the full benefit of an invention which practically brings him face to face with whom he will, and, better still, doing the work of a con-scientious and infallible scribe ?

The Railway Age says: The steady downward tendency of railway freight rates for a number of years is exemplified in the figures kindly sent us by the auditor of the Western Union road, showing that since 1860 the rate per ton per mile on his road has fallen by almost regular appeal or additional contents. fallen, by almost regular annual gradations from 3.36 cents to 1.72 cents— a decrease of almost 50 per cent. in 9 years.

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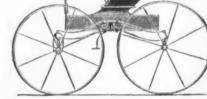
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The DEXTER KING Springs are similar to the Dexter, but the lower ones are nearer together, and under the body dispensing with the spring-bar. The Fifth Wheel is very simple, durable and pretty. All the Spring Shackles, Irons, Bolts, Fifth Wheel, etc., are Norway wrought, and will be made by drop forgings, thereby insuring neatness and uniformity.

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DEXTER SPRING COMPANY, Hulton, near Pittsburgh, Pa.

W. W. GRIER, Secretary.

# NEW EXCELSIOR LAWN MOWER

Received the Highest Award at the Centennial Exposition.

# IMPORTANT FEATURES FOR THE SEASON OF



#### Reduction in Price.

LESS WEIGHT. LIGHTER DRAFT.

And furnished with either Wheels or Roller. It has been adopted and can be seen in practical operation on the Public Parks of New York, Brooklyn, Boston, New Haven, Cleveland, Chicago, and on almost all the prominent City Parks in the UNITED STATES and CANADA.

The EXCELSIOR received the First Premiums at the Great Lawn Mower Trials

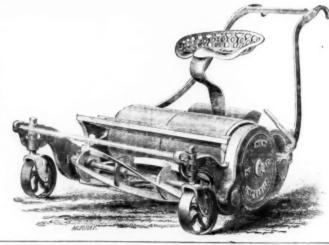
held in New York City, Cleveland, O., Waverly, N. J.; also at the **Great International Lawn Mower Trial** held at Carlisle, England, in September last, and at many other trials and Agricultural Fairs held in Europe and America. 6 SIZES FOR HAND POWER. 4 SIZES FOR HORSE POWER.

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New York, Thursday, May 2, 1878.

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#### AUSTRALIAN AGENCY.

American Hardware Company, Melbourne, ar gents for Australia. Sample copies will be maile r agents for Australia. Sample copies will be mailed them, free of charge, to any firm engaged in the ades we represent in Australia, Tasmania and New Zealand.

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Seventh Page .- Coal Washing in the South Rich Gold Discoveries in Arizona. South Amer

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cluded). Chattanooga. Cleveland. Boston. Cincinnati. Richmond. St. Louis. Louisville. Chicago. Baltimore. Our English Letter. Twenty-fourth Page .- Our English Letter

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Thirty-ninth Page. — Boston and St. Louis Hardware and Metal Prices.

Mr. Joseph D. Weeks, Associate Editor of The Iron Age and manager of our Pittsburgh office, sailed yesterday on the Seythia for Liverpool en route for Paris. Mr. Weeks travels in company with several eminent Western iron masters, and will probably visit some of the principal iron districts of Great Britain before crossing the channel. In Paris, Mr. Weeks will manage our bureau of Exhibition correspondence, giving personal attention to the iron and hardware exhibits. He also carries a special commission from Gov. Hartranft, of Pennsylvania, to inquire into the workings of the principle of arbitration in trades disputes in Europe and to collect information on other important subjects connected with labor and railroad management.

wages. We wish him a pleasant voyage and a safe return, as we shall miss his valuable aid in representing Western interests in our columns. Mr. Weeks is a gentleman of great force and energy, a conscientious and able journalist, and one of the few men who cannot be away from home and work without being greatly missed.

#### The Commercial Importance of Austria.

Austria proper, according to the latest ensus, has a population of 20,394,980, and Hungary 15,417,327, making together 35, 812,307, disseminated over an area of 240, 381 square miles. The empire is, therefore in size about midway between the States of Texas and California. Germany, as now constituted, is 30,155 square miles smaller, but exceeds Austria in population by 4,288,-722 inhabitants. From a commercial point 722 inhabitants. From a commercial property of view Austria is as important as Germany, Dye stuffs. although not possessing so large a sea-coast but the soil of Austria is more fertile, and her mineral resources are, taken as a whole, not inferior to those of Germany, although less developed. Geographically, Austria's interests lean toward the Southeast, following the course of the Danube on the one

Notwithstanding frequent wars during the past 30 years, the loss of her purely Italian which she has had to cope, Austria has been keeping pace with the moral and material which make up the rest of civilized Europe. This has been due in a great measure to the good sense and moderation of the present mperor and the wisdom of his advisers. again put to a severe test at the present oment

The following statistics will show Austria's resent position as compared with Europe and the rest of the world :

Merchant Navy, 1877-78—Austrian Empire: Salling vessels, 63s; tonnage, 253,72o; steamers, 74; tonnage, 83-545. Other maritime nations: Sailing vessels, 51,26o; tonnage, 14,525,40o; steamers, 5397; tonnage, 5424,189.

Railroad, 1877-78.—Austrian Empire: miles, 10,-946; cost, \$084,377,794. Rest of Europe: miles, 51,271; cost, \$084,377,794.

Railroads, 1877-78.—Aust 5; cost, \$984,377,794. 1 81,271; Oost, \$9,296,238,143.

Telegraphs, 1875.—Austrian Empire: Offices 3009; instruments, 2956; operators, 4689; area miles, 373,525; lines, miles, 28,302; wires, miles, 79,802; messages, thousands, 5149, or 343 per thousand inhabitants. Rest of the world: Offices, 26,

instruments, 43,160; operators, 48,336; area, 8, 9,737,742; lines, miles, 218,168; wires, 218,168

250,430; messages, mousanus, 78,509.
Post Offices, 1875.—Austrian Empire: Offices, 687; letters and postal cards per capita of population, 15; newspapers and samples, do., 4.7; proportion of letters to telegrams, 84 to 1. Rest of Europe: Offices, 43,734; letters and postal cards per capita of population, 9.7; newspapers and samples, do., 5.5. The only one of the four great elements of communication in which Austria com-

pares unfavorably with the rest of Europe is that of her merchant navy. This is owing to the fact that Austria has no port on the Atlantic. After a while, we presume, she will take a more active share in the trade with the extreme East through the Suez Canal, and not allow Italy to remain ahead of her in this respect.

The following shows the magnitude of Austria's traffic with foreign nations in millions of dollars :

		_												1	Import.	Export.	T'l For. Trade.
1867.				٠								 , ,			147.15	203.70	350.85
1871.			×	×	×	×		. ,						4	270.35	233.80	504.15
1872	. ,			*			. ,	. ,	. ,	,					306.85	194.00	500.85
1873							 , ,					,			291.55	211.80	503.35
1874						A .	 . ,		. ,						284.35	224.65	509.00
															276.25	252.25	528.50
1876							 					,	. ,	ĸ	267.10	295.30	562.40
1877				ж.							,	,			287.05	328.35	615.40
										_							

The volume of trade during the past year, it will be seen, has been increased about of per cent. This increase has taken place mainly, we presume, in consequence of the locking up of the Russian grain crop around the Black Sea during the late war. Central Europe and the Mediterranean have thus een compelled to draw their supplies from Austro-Hungary, and the high prices realized have enabled the agricultural classes to consume imported goods in proportionately larger quantities.

Notwithstanding the financial and industrial crisis which began with the so-called 'Vienna crash" at the time of the exhibition, it will be seen that the general trade movement in Austria has since developed most satisfactorily. Instead of trying to get rich suddenly on the stock exchange or by the founding of wild-cat banks and building societies based on fictitious real estate values, the industrial and commercial classes in Austro-Hungary have returned to steadier and less problematical pursuits; and although the country has not escaped the bad times which the crash we have alluded to precipitated, the weeding-out process has been long accomplished, and if peace be preserved, the commercial future of Austria is as promising, on the basis of present values, as that of the Western nations. Out of 147 financial concerns founded between 1871 and 1876, 103 have succumbed, and their capital of \$305,000,000 has now shrunk to \$120,500,000, owned by the 43 surviving banks. Referring to Vienna alone, we find that between 1871 and 1873 there were founded in that city 51 new banks. All but seven were wiped out by January 1, 1876, and there now remain but two out of these seven Between 1871 and 1873 there went into operation 3769 miles of new railroads; between 1874 and 1877 but 1577 miles were opened to public traffic. All of the latter, with the exception of 103 miles, were finished at government expense, the private companies being unable to complete them. since the public has lost confidence in private

increased considerably, as the following table will show :

OUR IMPORT FROM AND EXPORT TO AUSTRIA. In Thousands of Dollars.

Fiscal years.	Our Import.	Export.	Export.	Total.
1864	223	99	53	375
1865	197	937	192	1,326
866	436	690	23	1,149
867	511	162	30	703
868	625	268		896
869	976	623	3	1,599
870		1,185	23	1,579
873		1,630	23	2,597
872		1,460	34	2,506
873		1,609	63	2,453
874	489	1,682	6	2,177
875	669	1,662	5	2,336
876		1,554	1	2,505
877		2,666	2	2,712
Frand total	8,228	16,227	458	24,913
The follow	ring we	re among	the do	mestic
goods shipp	ed from	n the Un	ited Sta	tes to

Austria direct during the fiscal year ended June 30, 1877 

Cotton seed oil. Bacon & hams. It will be seen that petroleum and tobacco constitute our chief exports to Austria. Many American goods of course find their hand and reaching toward the Adriatic and way into Austria through Germany, perhaps Mediterranean on the other. Germany has as much more, the trip from our Atlantic its chief basis between Central Europe and the important northern seas. quiring steam towage. The distance is the great impediment in the way of a direct provinces, and the financial difficulties with traffic with Austria, and this distance is considerably shortened via Hamburgh, thence by rail to Bohemia, Austria, Silesia and progress of the less heterogeneous nations the remaining provinces. Bohemia, Silesia and Western Austria consume large quantities of American cotton, which they order from Liverpool and Bremen. Not a pound of it goes direct to Trieste.

Many American agricultural implements are used in Austria. Mowers and reapers are employed on the vast prairie lands of Hungary, but we doubt whether any of them ever go direct. We are sure that the Austrian and Hungarian visitors at the Paris Exhibition will take a deep practical interest in anything in the way of agricultural machinery, implements and tools we may there exhibit, and large orders may be hoped for.

#### The Wood Tariff as a Revenue Measure

Dr. Young, of the Bureau of Statistics, ends us the following table, showing the value of the Wood tariff (House bill No. 4106) as a revenue measure. It is a corrected summary statement, by schedules, of the amount of duty received from the articles enumerated in the Tariff Bill (H. R. No. 4106) which entered into consumption in the United States during the year ended June 30, 1877, and the estimated amount of duty by the proposed bill, with the increase or decrease of each schedule :

KLW-LHUARDCR>

Total	Cotton and cotton goods. Earth and earthenware. Hemp, jute, &c. Liquors. Provisions Sugar. Silk and silk goods Spices. Spices. Vood Wooden goods and wool. Sundries.	Class or Group.	
\$125,024,085,72	\$6,554,819,89 3,511,506,40 6,500,500,57 5,886,61,1 6,500,366,64 2,000,000.33 37,086,992.33 11,788,792.03 171,351,715,80 4,364,143.02 20,117,605,775,80	Received in 1877.	Amount of Duty.
\$125,024,085,72 \$121,082,468,11	\$4,533,336.63 3,031,552,73 5,551,000.53 6,378,300.53 6,378,320.65 4,409,306.79 9,744,575,17 1,375,540 4,395,934.66 5,705,934.66 1,459,447,55	Estimated (new rates).	of Duty.
\$0.686.225.54	\$519,799.19 \$7,348,315,79 \$7,348,315,79 \$556,404,79 \$1,794.44	Increase.	
\$0,686,225,54 \$12,728,743,15	\$5,001,460.26 479,642.67 959,410.04 957,993.69 3,014,983.86 3,014,983.86 5,716,359.88	Decrease.	

Duty not provided for in the bill..... \$3,198,221.69 Duty received as per above schedule. \$125,024,985,72
Duty estimated 121,982,468.11 Decrease of . \$3,042,517.61

Total decrease from receipts of 1877. \$6,240,739.30 If the Wood tariff is not a revenue measure, what is it? Probably the only answer to this question is that it is an effort on the part of sundry politicians to make cheap capital through a mistaken estimate of the popular sentiment on the subject of protection. If they could show a net saving in taxation by an increased revenue from imports, there would be some method in their madness, but when they gravely propose to reduce the customs revenues and make good the deficiency by a reimposition of the most burdensome and objectionable of all ways of raising money-the tax on incomes-they show that while aspiring to be statesmen they are not even good politicians.

Boston is to have an industrial exhibition this fall under the auspices of the Charitable Mechanics' Association. The location will

\* The duty on sugars has been computed at an average of 2.76% cents per pound, in accordance with the estimate of experts.

Our trade with Austria has of late years be the lots of land on Park square, belonging nimity they would not further pursue a man to the city of Boston and the Boston and Providence Railroad, aggregating about 85,000 square feet, which have been tendered have the contiguous Tennyson street school house at the bare expense of the removal of the schools. All this will give double the ground room ever before used for the exhibition. It is estimated that the necessary buildings on the vacant site can be erected for about \$30,000. The exhibition will open early in September, although the precise day has not been fixed. The fine location and large area on the first floor guarantee an exas has never before been equaled in the history of the society.

#### Socialist Disturbances.

A great deal of unnecessary alarm has been created by the announcement that the communists and socialists of various cities are arming and drilling. One of these agitators in Chicago informs a newspaper reporter that they intend to try the merit of the constitutional provision of the United States which guarantees to every citizen the right to keep and bear arms. "At our mass meetings this summer," he says, "we shall carry arms with us, and if armed assassins and paid murderers employed by the capitalistic class undertake to disperse and break up our meetings, as they did in such an outrageous manner last summer, they will meet foes worthy of their steel." "In other words, you don't propose to use arms until the other side become the aggressors?" "We don't propose to use arms unless they interfere with us and try to break up our meetings. But as to their being the aggressors, why that's what the capitalists always are. They are always treating the working classes with violence. Isn't starvation wages violence Isn't trampism violence? Isn't depriving men by the hundred thousand of the right to live and support their families violence, and violence of the most infamous character? We simply resist. We protect ourselves.

There is much in this kind of talk calculated to frighten nervous old ladies, but very little to occasion any serious alarm among men who have any capacity for reflection. We have no doubt that in some of our larger cities the socialistic element is strong enough to create occasional local disturbances, but the organized power of law and order will have but little difficulty in suppressing such manifestations of revolutionary spirit. Something over a year ago there was an attempt in this city to create a disturbance, and thousands of idle and vicious men gathered in Tompkins Square bent upon mischief. Any leniency or sign of weakness on the part of our authorities would have been fatal; as it was, the crowd dispersed peaceably, and the leaders betook themselves to neighboring wine cellars and beer saloons to boast of what they were going to do when they could.

These men who call themselves "citizens and take the red flag as their banner are scarcely worth the serious consideration of the student of social science. They have nothing to propose which is practicable this side of Arcadia or heaven; they do not, and never will, enjoy the sympathy and support of the American working classes; and they are vastly more given to loud talk and empty boast than to secret and powerful conspiracy. They are a class of men whom the police can watch with advantage, but they can do nothing which will be worse than was done last year in Pittsburgh and other railroad centers. This may be bad enough it is true, but if there had been any material existing for a revolutionary movement, it would have been a great deal worse. A few such men as "Citizen" Schwab, "Citizen" Megy, "Citizen" Kerney and "Citizen" Parsons can make a great deal of noise, but it is like the noise of sounding brass, and their favorite method of warfare is the traditional Chinese method of advancing with To hear one of these citizens plead for liberty in a police court when called up to answer the charge of "drunk and disorderly," would convince the most timid that they are not of the stuff heroes and martyrs are made of.

Victor Hugo's grand conception of Jean Valjean, is realized in some respects in the Ohio man who, after rising to an honorable prominence, is discovered to be an ex-convict. On the 27th ult. Hon. John O'Connor, a prominent member of the Ohio Legislature and chairman of an important committee, rose to a question of privilege. For some time proof has been accumulating that he was a deserter, a bounty jumper and an ex-convict of the Michigan State Prison. Several times he has endeavored to resign, but the speaker refused to lay his resignation before the House until Thursday, when it was voted to investigate his record. His speech on that day was in the nature of a confession of all that had been alleged. He said he had struggled for 10 years to elevate himself to a position and make himself worthy of the esteem of honest men; but all his efforts had gone for naught, and an attempt was now being made to drive him into the gutter. He denied the right of the House to investigate his history previous to his becoming a citizen of the United States. If direct. such investigation should prove that his conduct in the past had not been proper, it could do no one any good and would crush him ing in Alabama, taken from the Nashville forever. He threw himself on the generosity American, shows that our friends of the of the House, trusting that in their magna- South are beginning to appreciate fully the

who was crippled in body and poor in purse. At the close of his speach he sank pale and trembling in his chair, and tears rolled down the association rent free. They will also his face. He then left the House to await its action. This case, which cannot fail to excite the sympathy of every right-thinking man, has a practical bearing upon the question of the duty of the State toward victs, which has lately been the subject of much discussion among manufacturers. It is admitted that the industrial education of convicts is the surest way of reforming them; but if they are still to be convicts and outcasts, despite their reformation, they have hibition in dimensions and importance such but little inducement to forsake evil ways and seek a place among honorable men The spectacle of a man rising from such moral degradation to a position of trust among honest men, is one of the grandest imaginable, and it is the part of true philanthropy to judge such men by what they are and strive to be, rather than by what they have been.

#### Erie.

The reorganization of the Eric Railroador, as it is now known, the New York, Lake Erie and Western Railroad Company—is an event of great importance, and one in which many of our readers are much interested. The sale reported in our last issue was confirmed by the courts on Thursday, and on Friday the property was transferred to the trustees. On Saturday a meeting of directors was held, at which the following gentlemen were present : R. Suydam Grant, Solomon S. Guthrie, Hugh J. Jewett, John Taylor Johnston, Edwin D. Morgan, Cortlandt Parker, Homer Ramsdell, Samuel Sloan, Henry G. Stebbins, George F. Talman, J. Lowber Welsh, David A. Wells, William Walter Phelps, Charles A. Dana, J. Frederick Pierson, Theron R. Butler and James J. Goodwin. Of the absentees, Hermann R. Baltzer is in Europe; John B. Brown is in Portland, Me. ; Thomas Dickson and Asa Packer are at the mines of their respective companies; Giles W. Hotchkiss is at Elmira, and Marshall O. Roberts could not be found. All these gentlemen are named in the new articles of incorporation, together with the following members of the English Reconstruction Committee: Edward William Watkin, M. P.; Oliver Gourlay Miller, Henry Rawson, John Kynaston Cross, M. P.; John Westlake, Q. C.; Peter McLagan, M. P.; Benjamin Whitworth, M. P., and Thomas Wilde Powell. Hugh J. Jewett was formally chosen president of the new company and A. R. McDonough secretary. A. S. Spencer, for many years assistant treasurer of the road, was named for treasurer, but action in regard to that office, as also in regard to the position of vice-president and other officials, was postponed until a subsequent meeting, to be held on Wednesday or Thursday next. Shipman, Barlow, Larocque and McFarland were continued as counsel to the corporation. The benefits of the new organization remain open to all parties interested in the property who choose to unite in it. Nearly all the bondholders and a majority of the stockholders have already signified their adhesion. Those stockholders who are still out have yet six months in which to come in, the terms being the payment of 4 per cent. in money on the preferred stock and 6 per cent. on the common. As stated last week the scheme of reorganization embraces & change of gauge to 4 feet 81/2 inches and an entire new equipment. The details of the plan have not yet been made public, but as soon as possible we will lay them before our readers.

Both Russian and British local agents remain quiet, apparently waiting for a turn in events. But within a few days a considerable Russian order for metal used in the manufacture of cartridges has been closed. Of still more importance are the orders given by the British government for Gatling guns, the evident determination of the Admiralty being to provide every man-of-war in the British navy with from two to eight of these destructive war engines, chiefly for use in "the tops," so as to rake the decks of an antagonist. At the same time the fortresses in India are being similarly equipped; 200 Gatling guns have recently been ordered for this purpose, and conditionally 200 more. The agents of the manufacturers, in a conversation with us, speak of the recent affair between the Peruvian rebel ironclad Huascar and the British man-of-war sent in pursuit as having brought about this change in naval armaments.

Two steam launches provided with twin crews, and ordered by the Spanish government for service against the rebels in the east end of Cuba, are about being forwarded to their destination from the Delamater Iron Works. They are 45 feet in length, very swift, and capable of turning on their own centers, so that they can, if desired, run into creeks or among the reefs, and thread the most tortuous channels. They cost together about \$10,000, and have engines which are said to be "as handsome as a watch." If we mistake not these are of the West 6-cylinder pattern, and similar to those illustrated in The Iron Age of February 21. It is probable these vessels will be sent South via Philadelphia, and from the Southern coast to Cuba

An article in another page on coal wash-

to supply the Oxmore Furnace with washed coke, using one of Stutz's washers.

We are sorry so few of our stove manufacturers realized the importance of the Paris Exhibition in time to secure space for exhibits. We believe that only three of our stove-founding concerns exhibit at all-Rathbone, Sard & Co., of Albany; Abendroth Bros., New York; and the Open Stove Ventilating Co., also of New York. Messrs. Rathbone, Sard & Co. send specimens of their "Delmonico" and "Rathbone" ranges, "Prize Medal" cook, "Novelty" cook, "Dauntless" base burner and "Saturn" parlor heater, all adapted to burning bituminous coal and fitted with all the latest improvements. The exhibit consists of eight stoves and ranges, representing the best for which there is already some foreign demand. From their success in the soft coal districts of the West, the firm expect to turn their experience to good account in meeting the conditions existing in Europe.

line. This firm have done a considerable export business for several years, and are well satisfied of the advantages to follow their Paris exhibit.

a late application, and only secured space for one stove. As it combines the advantages of stove and open fire, it will probably attract favorable attention.

The sudden change of sentiment in the Senate on the subject of repealing the bankrupt law has occasioned much surprise. The bill on its original passage went through opening. with only a nominal opposition; when returned for concurrence in the House amendments it was supposed it would again pass without much opposition. On Tuesday, however, the vote on a motion to take up the bill for consideration resulted in a tie. It is still probable, however, that those who favor repeal have a majority.

The proposition of the House Sub-Committee on Education and Labor, to offer a bill imposing a tax of \$100 per head on Chinese immigrants, is simply a piece of cheap demagogy. The issue of the Chinese question promises to be a burning disgrace to the American people, and we hope Congress will not make itself responsible for any part of this by legalizing the persecution of Chinese

Yesterday the Paris Exposition was formally opened, but from all the accounts which reach us it will probably be a month before everything will be in place and the show appear to best advantage. We shall have full and valuable correspondence on all matters of interest to our readers.

#### New Publications.

INDUSTRIAL CHEMISTRY. Edited by B. H. Paul. Ph. D. John Wiley & Sons, New York, 1878. Ph. D. John Wiley & Sons, New York, 1878.

Every manufacturer engaged in the development of some branch of industry at times finds it necessary to study, if only superficially, the principles of another branch of art or science, either in order to be able to trace the mode of manufacture of the raw material he uses, or to follow the articles he markets in their application to various ends. A correct appreciation of the difficulties or of the wants of others may suggest to him the means of better adapting suggest to him the means of better adapting his mode of manufacture to the resources at his disposal, or to extend the range of appli-cation of his manufactures. To him as well as to the student in technical colleges the as to the student in technical colleges the work under review will be a welcome addition to English technical literature. It is based upon a translation of Stohmann and Engler's German edition of Payen's "Precis de Chimie Industrielle." The mass of material which comes within the scope of a work the smallest chapters of which for the specialist would expand into volumes, is arranged very conveniently under the most important elements. Their history, occurrence, characters and preparation, uses and rence, characters and preparation, uses and compounds are given, together with a gen-erally concise and fully illustrated description of their modes of manufacture. Thus, for example, under carbon we find a clear, short statement of the element in its different forms of utility as coke, vegetable and animal charcoal, and lampblack. The treatise on carbon closes with a summary of the most important points on fuel. The manufacture of gunpowder is added to potassium, that of glass and potteryware to aluminum, while a short treatise on the metallurgy of each metal is accompanied by a description of the mode of manufacture of those of its compounds for which commerce makes an extensive demand. The specialist must of course not look for information regarding the latest approved mechanical appliances or modifications of detail in process come within the province of the technical journal, supplemented by private enterprise. But for a good exposition of fundamental chemical principles and a general outline of the plant employed, Dr. Paul's "Industrial Chemistry" will fully meet the wants of those who require a good book of reference or a guide in the study of chemical techno or a guide in the study of chemical techno-logy. A part of the work is devoted to or-ganic chemistry. For example, the prepar-ation of wood, paper making, fat and oil, the preparation of fatty acids, the purifica-tion of tallow and the rectification of crude oil, are given a full share of elaboration. Artificial lighting, the manufacture and treatment of caoutchouc, gutta percha, starch and sugar are discussed as well from the point of view of a practical manufac-turer as from that of a chemist. A decided advantage gained by the author is the adop-tion of the new chemical formulæ, which has

dexing. Of these we shall speak more fully in a future issue; but from what we have seen we are satisfied that the work is as practical and valuable an encyclopedia of arts and sciences as we have ever seen.

#### The Paris Exhibition.

The Paris Exposition was opened yester-The Paris Exposition was opened yesterday with great success, the programme for the event, heretofore made public, being strictly carried out. At one time in the morning it was feared that the ceremonies would be interfered with, as at 9 o'clock rain was falling. But at 9.45 o'clock the rain ceased and the day became fine. The clouds broke and the sun shone out brilliantly. The weather was rather hot.

liantly. The weather was rather hot.
President MacMahon reached the Exhibi tion at 2 o'clock in the state carriage, es-corted by his military household. He was welcomed by M. Teisserenc de Bort, Minister work of this house, and including the kinds of Commerce, and declared the Exhibition open amid salvos of artillery and music by demand. From their success in the soft bands. The Marshal then, at the head of a brilliant procession, which included the Prince of Wales, Ex-King Amadeus and the Crown Prince of Denmark and the Nether-The exhibit of Abendroth Bros. is quite large. It consists of 44 stoves of all exque and imposing. The state bodies in grand uniform, the councillors and magisline. This firm have done a considerable of the Institute and the Legion of Honor stood out in strong contrast with the senators, deputies and clergy and minor officers

> The American section, though unfinished compares favorably with the others. The department of manufactures shows the least progress. In our trade report will be found a special dispatch to *The Iron Age*, stating which of the American exhibits of hardware and metal goods were ready at the

#### The French Tariff.

\*Import duties on goods arriving direct

"Import duties on goods arriving direct from non-European countries:

All ores and oxides, free; pig iron, too kilos., 96c. to \$1.68; bar iron, flat, too kilos., \$2.40 to \$3.36; ditto, square, too kilos., \$2.40 to \$3.36; ditto, round, too kilos., \$4.80; tin plates, too kilos, \$9.60; iron wire, too kilos, \$7.20; etc., bar, too kilos, \$4.80; tin plates, too kilos, \$9.60; iron wire, too kilos, \$7.20; etc., bar, too kilos, tin plates, 100 kilos, \$0.00; from wire, 100 kilos., \$7.20; steel, bar, 100 kilos., \$7.20; 7.4, a difference equal to 31 lbs. per cubic foot. In tenacity it differs as 45,970 to 9000 lbs. kilos., \$18 to \$26.40; ditto, polished, 100 kilos., \$120; ditto wire, 100 kilos, \$16.80; old iron, 100 kilos, 96c. to \$1,92; dross, 100 differs as 2 to 1, and in hardness as 7 to 1. kilos., \$120; ditto wire, 100 kilos, \$10.00; old iron, 100 kilos, 96c. to \$1,92; dross, 100 kilos, \$3; ditto wire, 100 kilos., \$20 to \$24; brass and phosphor-bronze, raw, free; ditto, wrought, 100 kilos., \$3; ditto wire, 100 kilos., \$20 to \$24; copper ditto, gilt or silver-plated, 100 kilos., \$20; pig lead, free; lead, with an alloy of antimony, 100 kilos., \$6.24; sheet lead, 100 kilos., \$5.76; old lead, free; block tin, free; tin in sheets, 100 kilos., \$14.40; old tin, free; speter, in slabs, free; sheet zinc, 100 kilos., \$12; old spelter, free; nickel, first fusion, whether pure or with alloys, free; ditto, with alloys, manufactured, 100 kilos., \$24; sulphite of antimony, 100 kilos., \$6.24; colbat, powder, 100 kilos., \$6.24; colbat, powder, 100 kilos., \$7.20; cadmium, 100 kilos., 48c.; quicksilver, 100 kilos., 24c.; gold, platina and silver in bars, as well as old jewelry, 100 kilos., \$2; gold, beaten, 100 kilos., \$500; silver, 100 kilos., \$100; manganese and all other metals, free; clocks and clock movements, ner piece, 26c. out tenders, 100 kilos., \$6; ditto, 100 kilos., \$7.20; copper ditto, 100 kilos., \$3.60 iron tenders, 100 kilos., \$7.20; copper ditto, 100 kilos., \$3.60 iron boilers, 100 kilos., \$7.20; ditto boats, 100 kilos., \$7.20; gasometer copper, 100 kilos., \$14.40; gasometer copper, 100 kilos., \$1.40; trucks for sand, 100 kilos., \$4.80; iron boilers, 100 kilos., \$7.20; ditto boats, 100 kilos., \$7.20; gasometer copper, 100 kilos., \$14.40; apparatus for sugar boiling distilling and heating, 100 kilos. distilling and heating, 100 kilos., \$14.40; all other machinery, 100 kilos., \$4.80 to \$15.60; all other accessories to machinery, 100 kilos., \$48; agricultural machinery, plain, of iron and steel, 100 kilos., \$3.60; other, ditto, in iron, steel and copper, \$3.60 to \$48; scientific instruments, 12 to 36 per cent.; tools, 100 kilos., \$12 to \$48; wire cloth, 100 kilos., \$18 to \$36; sewing needles, 100 kilos., \$120 to \$192; fish hooks, 100 kilos., \$43; metallic pens, \$96; cutlery, prohibited; all cast iron manufactures, prohibited; iron tube, 100 kilos., \$8.40 to \$72: copper and brass mankilos., \$8.40 to \$12; copper and brass manufactures, 100 kilos., \$24 to \$48; lead ditto \$5.76; tin hollow-ware, \$24 to \$48; manufactures of pure spelter and nickel, prohibited; ditto gilt and plated, prohibited; all arms for war purposes, prohibited; all arms arms for war purposes, promoted; an arms for peaceful purposes, 100 kilos., \$48 to \$96; all powder, percussion caps and projectiles for war, prohibited; all percussion caps, cartridges, miners' fuse and toy arms, 10 per cent.; all other tin plate, steel and iron manufactures, prohibited; vessels, per ton, \$4.80; anchors, 100 kilos., \$2.40 to \$3.60; iron cables, 100 kilos., \$9; other cables, 12

per cent.
Coal and coke, 100 kilos., 2c; bricks 1000, 96c.; grindstones, free; sawed marble, 100 kilos., 20c. to 30c.; potash, free; borax, crude, free; ditto, manufactured, 100 kilos., \$10 to \$43.20; carbonate of magnesia, 100 kilos., \$48; ditto of lead, free; slates for building, 1000, 80c.; school slates, 100, \$2; extract of logwood and other dyewoods, prohibited; bone black, free; starch, 100 kilos. \$5.04; glue, free; rosin and resinous products, free; candles, 5 to 10 per cent; pottery and chinaware, 100 kilos. \$1.44; \$3.84; glassyres 100 100 kilos., \$1.44 to \$78.48; glassware, 100 kilos., 4c. to \$72; paper, paperware and kilos., 4c. to \$72; paper, paperware and books, 100 kilos., 2c. to \$72; tubes made of paper and asphaltum, 100 kilos., 20c.; prepared skins, 100 kilos., 60c. to \$146.88; cordage, 100 kilos., 48c. to \$6; prepared whale-bone, 100 kilos., \$2.40; crude petroleum, each kilo. of pure oil 800° contained therein, 6c.; ditto ditto, 700°, 8c.; refined petroleum, 800° and over, 100 kilos., \$7.40; ditto, 700°, 100 kilos., \$9.40; empty casks, free; com-

mon brooms, free; oars, 100 meters, 48c. to \* The franc is calculated at soc.

importance of preparing coal for the manufacture of a superior quality of coke. The Eureka Company have made arrangements to supply the Oxmore Furnace with washed to \$96; smaller musical instruments, each, 15c. to \$8.64; wood, timber, lumber not over 80 millimeters in diameter, free; ditto, to \$96 : over 80 millimeters, the 100 meters, 1c.; masts and spars, free; veneers and staves, the 1000, 2c.; poles, the 1000, 6c.; millet stalks for brooms, free; cabinet wood in logs or planks over 2 decimeters in diameter, free; ditto in planks of 2 decimeters in diameter or less, 100 kilos., 20c. to 40c.; dyewoods in sticks and ground, free; carriages, fine, prohibited; carts and common trucks, 18 per cent., and 6oc. the 100 kilos. gross.

> The Courrier des Etats-Unis,-The Courrier, of this city, yesterday celebrated its 50th anniversary. During its long existence it has not only been the organ of the Franco-American population of the United States, but has by good management secured an extensive circulation in this country among the Swiss and better class of Gerwhile in Canada, Spanish America and Brazil it is extensively read by educated people. We congratulate the Courrier on its prosperity, so well deserved by the uniform excellence of its editorial matter, and wish it another half century of equal usefulness

The total foreign exports from Boston between March 29th and April 19th were \$3,506,586, including \$2,669,199 to Great Britain, \$246,045 to Canada, \$56,127 to New foundland, \$64,642 to Miquelon, \$22,818 to New Zealand, \$24,592 to Australia, \$4563 to heir Paris exhibit.

The Open Stove Ventilating Co. made late application, and only secured space or one stove. As it combines the advantile of the store of the

#### On The Remelting of Cast Iron for Foundry Purposes.

BY WILLIAM FORSYTH.

A knowledge of the physical properties of cast iron, such as tenacity, hardness and density, is of the highest importance to the engineer in designing and constructing ma-chinery, and public works generally. In most tables of the strength of cast iron the resistance which this metal opposes to various strains is given as if there was no material difference between inferior and

superior qualities.

The following will show the great difference between the higher and lower grade of cast iron. The density differs as 6.9 to

It is our purpose to inquire into the cause of some of these differences, and to see how and why they are produced,

especially in the iron foundry.

1. The Effect of Remelting Cast Iron in a Cupola.—The famous experiment of Fairbairn on the successive remelting of cast iron seems to have furnished the principal information generally known on the subject, and to have established the rule that the strength of cast iron increases with each remelting until it reaches the maximum at the twelfth. The results of this experiment however, only apply absolutely to the par

however, only apply absolutely to the particular pig iron used, the same grade of that iron melted in the same kind of a furnace and with the same kind of fuel.

The details of the experiment are, therefore, necessary for a proper understanding and application of the results, and I give them below: The pig was No. 3 Eglinton, hot blast, remelted in a cupola with coke.

Three test pieces I juch square and 5 feet

No. of Re- melting.	Spec. grav.	Transv. brkg. load, 1 in. sec. 54 in. apart.	Mean ult. de- flec., in.	No. of Re- melting.	Spec. grav.	Transv. brkg. load, rin. sec. 54 in. apart.	Mean ult. de- flec., in.
r	6.969	490.0	1.440	10	7.108	566.9	1.626
2	6.970	441.9	1.446	II	7.113		1.636
3	6.886		1.486	12	7.160		1.666
4	6.938	413.4	1.260	13	7.134		1.646
5	6.842		1.503	14	7-530		1.513
6	6.771	438.7	1.320	15	7.248		0.643
7	6.879	449.I	1.440	16	7.530	351.3	0.556
8	7.025		1.753	17	Lost.	Lost.	Lost.
9	7.102	546.5	1.620	18	7.385	312.7	0.479
		CHI	MICAL	ANALYS	318.		
No. of	Reme	lt'g.		C.		Si.	S.
1				2.76		-77	.42
8				2.30		1.75	,60
VO				3,50	1	80.1	. 26

. 3.75 2.22 For a comparison of strength with other iron I have converted the figures into their values in the United States government unit.

The chemical composition does not correspond to what we should expect from the increase in strength and density. The increase in strength and density. The specific gravity increases nearly regularly up to the fourteenth fusion, being 6.969 at the first, 7.160 at the twelfth and maximum strength and 7.530 at the fourteenth. Unfortunately the percentages of free and combined carbon are not given, but I can only explain the increase in strength by the fact that the iron tech we some early of from the fuel in the

took up some carbon from the fuel in the cupola, which became combined by subse-quent meltings and thus increased the guent metrings and thus increased the strength and density. The other impurities, silicon and sulphur, which exist in greatest proportion in the eighteenth and last re-melting, must also have been taken up from the fuel in the cupola.

the fuel in the cupola.

In remelting in a cupola the iron is intimately mixed with the fuel, and is in contact with it when in a molten state. The

Very soft gray iron may be retained in a

nolten condition in a cupola in contact with cood coke without taking up sulphur from it, out mottled or white iron or steel takes up sulphur with remarkable readiness. In melting cast iron for the manufacture of Siemens-Martin steel, an attempt was made o bring the metal to a state of white iron by melting it in a cupola, and by putting in a pair of tuyeres directed downward to blow on the surface of the melted metal; but it was found that as soon as the iron was thus made less gray it at once took up sulphur

vas unforgable.

This difference in the effect of coke on gray and on mottled or white iron will ex-plain in a measure why car-wheel makers find it necessary to use good anthracite coal in melting high-wheel irons, and also why we can use coke in melting our soft gray rons in the iron foundry—coke being by far the most economical fuel, so far as cost of melting is concerned.

from the coke, so that steel made from it

CHEMICAL ANALYSES OF VARIOUS FUELS.

	Fixed Carbon.	Volatile Matter.	A8h.	Sulpbur.	P h o s- phorus.	Moisture.
Best Anth. Coal	89.06	3.45	5.81	0.30	0.024	1.35
Aver'ge Anth. Cl.,	82.50	5.50		0.35	0.012	1.15
Connellsville C'ke.	87.46		11.32	0.69	0.029	0.49
44 44				0.746		*****
Bennington "				0.91		
Hallidaysburg Ck. Broadtop Coke (K.			11,36	1.06		
C. & I. Co.)	89.28		9.66	1.06		
Mercer Co. bl'k C'l	168.03	25.49	1.70	0.04		3.80
Connellsville Coal. Bennington Coal		31.36	8.23	.784	*****	
(Miller) Broad top Coal	68.50	22.38	8.00	1.12		
(Barnet)	74.65	16,00	7.50	1.85		
Broad top Coal (Kelly) Pittsburgh Coal	71.72	19.68	7.50	1,70		*****
(Irwins)	61.45	31.74	5.81	1.04 not		,.,
English Coal	83.27	8.21	1.52	given		
Welsh Coal				0.90		

It is said that the contamination of iron by sulphur in a cupola, from the coke, may be greatly diminished or almost entirely prevented by making the coke from coal finely crushed and mixed with a small amount of lime. In burning coke made in this way from fine coal mixed with 5 to 10 per cent. lime, the sulphur is fixed by the lime and nost of it remains in the ash.

In remelting iron for the purpose of improving its quality it is doubtful whether a cupola, even with good fuel, is very efficient, and several remeltings would be required in a cupola to accomplish what might be done by one fusion in a reverberatory furnace.
As explained in regard to Fairbairn's experiment, the increase in strength attending remelting in a cupola is more the result of a change in the condition of carbon (increasing the amount of combined carbon) than to any improvement in the purity of the metal. It is generally admitted that iron melted in a cupola in the ordinary way is rendered less fit for the Bessemer process than when tapped from the blast furnace and placed directly into the converter, and a number of Besse-mer steel works in England (Barrow, Ebbw Vale, Vaughn & Co.) are now using the direct method. The Vulcan Works at St. Louis are arranged to work in that way Louis are arranged to work in that way. The quality of the steel is found to be better, and by a careful analysis of steel made by the use of the cupola, an amount of sulphur has been found which could not be accounted for by the quantity in the pig.

2. Remelting in a Reverberatory Furnace.

—The superiority of castings made from iron melted in a reverberatory furnace is

iron melted in a reverberatory furnace is well known, this form of furnace being used in making chilled rolls, cannon and malleable iron castings. Its advantages are that the metal is not in contact with the fuel, and does not take up its impurities, and that a large surface is exposed, both in melting and in the pool after melting, to the oxidizing influence of the flame. Besides, it can be retained in fusion any desirable length of time, and we thus accomplish by one fusion what would require several in a cupola. Long-continued fusion seems to be as effectual in increasing the strength of iron as re-

peated meltings.

The following experiment illustrating this point was performed by Mr. T. J. Bramwell at the Woolwich Arsenal, in 1863: No. 1 Arcadia cold-blast pig iron from Nova Scotia was melted in a reverberatory furnace, and as soon as fused eight test pieces were cast, and the average tensile strength was found to be 16,800 lbs. per square inch; the iron was kept in fusion two hours longer and eight more tests were taken, and these gave an average tensile strength of 18,592 lbs. After the iron was in fusion 334 hours, tests were again taken, the iron breaking at 24,192 lbs., an increase of 50 per cent. The whole charge was then cast into pigs to be used again. On the next occasion the furnace was charged with one-half No. 1 pig and one-half of the pigs which had been subject to the prolonged fusion. Tests cast immediately after fusion broke at 24,640 lbs., and a test cast four hours afterward cave an a test cast four hours afterward gave an average tensile strength of 41,440 lbs., the strongest breaking at 43,904 lbs. The specific gravity of the metal increased from 7.09 for the No. 1 pig to 7.29 in the strongest sample. Another experiment on the effect of prolonged fusion on cast iron was made at Algris Foundry, Boston, 1849. The reverberatory furnace was charged with a mixture of four parts Armenia pig and one

p	art C	opake pi	g:			-	-	
	F	irst Fusio	n	To	Se	cond	l Fusi	on
ti	me in	Specific gravity.	Ten- acity.	tim	e in		edfic vity.	Ten- acity.
3 4	15 15 15 15	7.175 7.022 7.216 7.229 7.240	20,336 25,684 27,456 28,736 29,327	4 5 6 7 7	45 45 45 15 45	7.	281 288 327 334 334	33,423 30,644 36,312 35,870 37,552
	The	no moonly		4-	abo		42-4	

longed exposure of liquid iron to an intense heat increases its tenacity and density, and that this increase directly corresponds with

amount of sulphur, but that an amount of foundry. The No. 1 pig had a density of silicon was removed.

7.032 and tenacity of 15,129 lbs. The same 7.032 and tenacity of 15,129 lbs. The same iron, after being three times remelted in a reverberatory furnace, had a density of 7.301 and a tenacity of 35,786 lbs. an increase in density equal to 17 lbs. per cubic foot and in tenacity in the ratio of 100 to 236; No. 2 pig had a specific gravity of 7.153 and tenacity of 27,153 lbs; No. 3 pig had a specific gravity of 7.230 and tenacity of 34,923 lbs.; 10 parts No. 1, second melting, and four parts No. 3, first melting, gave specific gravity 7.250 and a tenacity of gave specific gravity 7.259 and a tenacity of 36,916 lbs.; eight parts No. 1, second melting, and six parts No. 3, first melting, gave specific gravity 7.270 and tenacity of 39,373 lbs.; three parts No. 1, three parts No. 2, two parts No. 3, all of the second melting. gave specific gravity 7.251 and a tenacity of 37,789 lbs.

The softest Greenwood iron will endure a reater number of remeltings with advantage greater number of remeltings with advantage than the higher grades. The maximum tenacity of No. 1 was attained at the third remelting; in Nos. 1 and 2 mixed at the second remelting, and in Nos. 1, 2 and 3 mixed at the first melting. At the second remelting of the latter the tenacity of the test pieces diminished while it increased in the gun heads. It appears than when iron is in its best condition for caving into test bars 2 inches condition for casting into test bars 2 inches quare, it is then in a state which requires in additional fusion to bring it to its best condition for casting into the massive bulk of cannon. In selecting and preparing from for large castings we may, therefore, proceed by repeated fusions or by varying the pro-portion of the different grades until a good portion of the different grades until a good tenacity is attained in the test bars, and the iron will then be in good condition to be again remelted and cast. The density of the several grades of pig iron is in the order of their respective numbers, and they all increase in density at each additional fusion. The density is greatly in grantly test here. The density is greater in small test bars which cool quickly than when cast into larger masses which cool slowly. The tenacity increases quite uniformly with the density until the latter ascends to some point, after which an increase of density is accompanied by diminished tenacity. There are cases where a medium tensile strength is observed to accompany a high density, and the reverse where low density is found in connection with medium tenacity. When the first condition occurs, the metal generally has either a very high mottle with white silvery hue or is of a uniform dull and chalklike appearance, a circumstance which may be attributed to its being too frequetly remelted or to too long a continuance in the furnace, or to the fact that it was cooled too suddenly in casting. In the second case, where we found low density with good tenacity, it is observed that the surface of the fracture presents a dark carbonaceous appearance, yet with a closely aggregated crystallization. rystallization. The excess of graphitic car-on renders its density necessarily low, when by reason of its close structure and the inreased numbers of its crystals its tenacity high. This is the characteristic fracture of No. 1 cold-blast charcoal iron, and the peculiar crystallization may be due to the absorber of a large percentage of impurities, either silicon, sulphur or phosphorus, and their absence would also explain the increase in strength. The low specific gravity does not indicate purity, however, as pure iron has a higher specific gravity than impure.

The turning point of density at which Greenwood attains its maximum tenacity is Greenwood attains its maximum tenacity is about 7.27. The density may be extended so high as to endanger the soundness of the casting. As the density of iron increases, its liquidity when melted is diminished. This causes it to solidify quickly and form cavities in the interior of the casting, and this point of density is below the maximum of tenacity. We may, therefore, safely continue iron in fusion with increasing improved. tinue iron in fusion with increasing improve-ment in its quality so long as sufficient liquidity remains to insure exemption from cavities in the casting. It is more impor-tant to determine this point than the maxi-mum tenacity, and it can be conveniently ascertained by the fracture of small test pieces taken during different periods of fu-

I have found a convenient shape for test pieces to determine the relative hardness of east iron to be a wedge about 6 inches long, 3 inches wide, ½ inch thick and tapering to 1-16 inch thick, with a groove lengthways and in the middle. The fracture will exhibit white iron at the thin end and dark gray at the large end, and a test cast with hard iron will exhibit the white iron at a greater dis-tance from the small end, and the mottled, bright and lighter shades will be found ade large end. though less reliable than that of an actual measure of the density and strength, is convenient because of its ready application at short intervals while the iron is in fusion, and a practical eye will soon be able to mark the progress of the changing quality of the iron and to determine the proper time for casting. By making larger wedges, so that the thickness is equal to that of the casting to be made, we get a fair indication of the quality of the iron in the casting as regards grain and hardness. For small castings which cool rapidly, remelted iron is not charged, but soft No. I pig must be used to secure gray iron in the casting.

I had a good opportunity to make an ex-periment on the effect of remelting in a cupola to ascertain the increase in strength, which I carried out as follows: A mixture of 40 per cent. car wheels, 25 per cent. Morgan (charcoal), 30 per cent. Crane and 5 per cent, steel was charged for a large anvil, and it was afterward found that the mold was not dry enough to cast that day. A test piece was taken and the iron was run into pigs. The next day these pigs were charged alone and another test piece made. The first broke at 15,000 lbs. (transverse, 2 inches square, 12 inches between supports), and the second at 18,000 lbs., an increase of 20 per tact with it when in a molten state. The conditions are thus very favorable for it to take up any impurities for which it has an affinity. Mr. Snelus has proved the fact by some hundreds of analyses that there is a removal of silicon in working the cupola for Bessemer purposes; he also proved that in melting gray iron in a cupola with good coke it did not take up any appreciable cent. scrap and 12 per cent. Glamorgan

cent. scrap and 12 per cent. Glamorgan broke at 21,000 lbs.

I have found that, in making strong mixtures by the addition of high grade irons or steel, we cannot exceed a transverse strength of 18,000 lbs, without increasing the hardness so that the castings are finished with difficulty. The quality of hardness in cast iron appears to correspond more nearly with density than any other quality, and also cast iron appears to correspond more nearly with density than any other quality, and although the tenacity and hardness generally coincide with density in the different grades of iron of the same make or from the same furnace, the density of any one make will not indicate the hardness or tenacity of any other, or different make with any degree of exactness. We have seen that in remelting iron for the purpose of purifying it and increasing the strength, in the best kind of furnace the removal of silicon and other impurities is accompanied by a change in the condition of the carbon, increasing the percentage of combined carbon, rendering the metal liable to shrink so that it will not fill sharp corners, causing an unsound casting and making it too hard for finish, and that this occurs before reaching the maximum of density and strength, thus limiting our efforts in this direction. We look then for density and strength, thus thinting our er-for ts in this direction. We look then for some other method of treating cast iron, which we can hardly expect to be done in the blast furnace, but which may be started

there.

We have also found that the most elaborate physical tests made to develop the laws showing the relation between density, tenacity and hardness, and how these qualities are affected by treatment, making different grades in the blast furnace, the effect of remelting in the cupola, and continued fusion in the reverberatory furnace and the effect of different modes of cooling and casting, have only given us laws which apply to some particular kind of iron, and we conclude that chemical analyses in connection with physical tests is the only method of determining the best kind of iron for foundry purposes and the best method of treating it in order to get it in the best possible condition for casting.

condition for casting.

The ideal foundry iron for machinery The ideal foundry iron for machinery would seem to be pure iron in combination with sufficient free carbon to secure a sound, sharp casting; and this carbon finely and regularly distributed over closely aggregated crystals, which would insure high strength with proper degree of hardness—an iron which will endure a tensile strain of 40,000 lbs., and make a solid casting not too hard to finish. to finish.

There is such an intimate relation between carbon and silicon in cast iron, that it would be interesting and useful to know if it is possible to remove nearly all the silicon without causing the carbon to combine to such an extent as to make white iron. It would also be useful to know the following: 1st. The difference between a certain grade of pig iron of a given strength and hardness, and iron of the same kind but lower grade, having the same strenth and hardness produced by remelting. 2d. The cause of hardness in cast iron and what elements increase it. 3d. The composition of iron having a maximum tenacity with minimum hardness.

4th. Will anything besides free carbon cause iron to melt liquid? 5th. Will this be effected in the carbon cause iron to melt liquid? tual in iron containing a large percentage of combined carbon? and 6th, What are the conditions which favor small and regular crystallization in soft iron ?
ALTOONA, PA., April 8, 1878.

#### INDUSTRIAL ITEMS.

MAINE.

The fire in the furnace of the Katahdin Iron Works has been extinguished, and smelting operations will be closed for some two or three months. A crew of about 20 men will be kept busy digging ore and making charged. ing charcoal.

NEW HAMPSHIRE. Lafayette Hall's nut and bolt factory at arket was destroyed by fire last week. Loss, \$34,000; insurance, \$20,000.

VERMONT.

The Tyler Foundry at Brattleboro', long idle, and which was recently sold to other parties, is to be started up again for the manufacture of fine castings.

MASSACHUSETTS.

The Lowell Machine Shop had a large contract for machinery, to supply the Sagamore and Border City Mills, of Fall River, now so abruptly closed by the dishonesty of their treasurer, G. T. Hathaway. Only a little of this was completed, and none had been shipped, so that the loss to the corporation it is thought will be nothing. But about 200 men will have to be discharged, for a time at least.

The upper portion of the old Atlantic Works, at East Boston, are now occupied by the American Arms Company, of which George Linder is president, Francis H. Ray mond, treasurer and business manager, and George H. Fox, superintendent. The business consists mainly in making light breech-loading shot-guns, and the resources of the factory are taxed to their capacity, the company, indeed, being behind their orders. They employ about 50 men at present, and intend shortly to have 100 actively at work.

The Northampton Emery Wheel Company at Leeds, have re-elected Ira Dimock, president, and Col. J. L. Otis, clerk and treasurer; and these gentlemen, with L. B. Williams, S. B. Fuller and A. B. Clark, constitute the board of directors. The company is in excellent condition and the treasurer. is in excellent condition and the treasurer made a very gratifying exhibit of the result of the last year's operations. A good divi-dend was declared and a surplus remains in the treasury.

CONNECTICUT.

The business of the Northfield Knife Company has been augmented to such an extent that the mail facilities of the town have had to be increased for its accommoda-

tion.
The Windsor Locks Steel Works, which have 6 months orders ahead, recently suf-fered a delay of 10 days by the breaking of their main shafting.

The Scovill Manufacturing Company, of Waterbury, are putting up an exhibit of brass works and other articles at the Museum

of Industrial Art, in New Haven.
The Reynolds Bridge Knife Company are

# IMPROVED Gimlet Pointed Wood Screws, Patented

1876.



After forty years' experience we offer to the trade our Centennial Screw, patented May 30, 1876, as the best we have ever known.

The method of manufacturing is also patented, and we are changing our machinery as fast as possible, to manufacture the improved article only. To introduce them, they will be sold at same price as the old style screw.

The new screws will be packed in manila colored boxes with new label covering

end of box, and enlarged figures showing plainly contents.

To distinguish this screw we have adopted a trade mark, which is also secured to us.

1876. Section at Line A B Section at Line C D Section at Line C. D. Section at Line E P Section at Line E F

The above drawings show the progress of making screw from the old blunt point to style now adopted.

Experience has shown that the weak point of screws, as formerly made, is at the heel of the thread, where all the strains of forcing the screw into the wood naturally concentrate

To avoid the sharp angle existing in the old style of screws has been the aim of all manufacturers, but every expedient hitherto adopted has proved as objectionable as the evil complained of.

It will be seen in our new screw that not only is the sharp angle avoided, but the strength very much increased, as illustrated above. See sections at lines.

CLAIM.

"A Pointed Wood Screw having the outer periphery of the thread upon its body cylindrical, while a portion of the body below the thread and near the neck is conical, the remainder of the body to the point being cylindrical, and yet having all the thread brought to an edge of a constant angle, without jogs in the paths between the threads, substantially as described."

clearing away the debris of their recentlyburned factory, preparatory to rebuilding. NEW YORK.

A very difficult casting was made at the Eagle Iron Works, Buffalo, last week. It consisted of a drum upon which the rope for drawing coal cars up an inclined plane was to be would. The outside diameter of the drawing coal cars up an inclined plane was to be would. The outside diameter of the drum was 5 feet, and its face 32 inches, with a flange 2 inches wide all around the rim on the inside on both edges, and a special groove for a 1½-inch rope running over the entire face of the drum. The hub was 10 inches in diameter and 18 inches long, with a 5-inch core through the hub and 2 sets of arms extending from the hub to the rim. The entire mold for this casting was made in green sand, except those of the arms, which were made in dry-sand corps and laid in the center core. The latter was swept up into the desired shape, as was also the outside of the mold with the special groove, covering the entire face of the drum; 4500 lbs. of molten iron was required to pour the mold, and when the casting was turned out it was as perfect as if molded in dry sand or loam. To make castings of this shape and size is no perfect as if molded in dry sand or loam. To make castings of this shape and size is no great feat, as much larger drums than this one are turned out at some of the foundries in the coal regions almost every week; but the molding of such a piece in green sand is something that scarcely one founder in a hundred would undertake to do, so that this casting is probably one of the most difficult ever made in green sand in this or any other country. In the coal regions where drums of this kind are made they are always molded in loam, and in many regions where drums of this kind are made they are always molded in loam, and in many foundries plain pulleys of even less diameter than 5 feet are often molded in loam, because they do not possess the necessary pattern or ring. In the Eagle Foundry, however, all pulleys are molded or swept up in green sand, and under the direction of their experienced foreman, Mr. John Bowen, pulleys 12 feet in diameter, with a 30 inch face, have been swept up in green sand, and as perfect a casting turned out with it as could have been made with a loam mold, at a much less expense.

The Buffalo Scale Company have received orders from the Wheeling Iron and Nail Works for a 40-ton railroad track scale with their patent combination beam which dispenses with the use of weights, the weighing being done exclusively with the poises, thus avoiding the handling of weights, and the

penses with the use of weights, the weighing being done exclusively with the poises, thus avoiding the handling of weights and the trouble frequently caused by the loss or misplacement of weights. With the combination beam the tare may be taken off when weighing, thus obviating the necessity of figuring to ascertain the weights less the tare. They have also received orders from the same company for one of their furnace. tare. They have also received orders from the same company for one of their furnace charging scales, which is arranged with a patent combination beam upon which the weighing is done exclusively with the poises. It may be locked up so that the employees about the furnace cannot change the weights or know how the furnace is being charged.

The Shepard Hardware Company of Buffalo are making extensive preparations to

falo are making extensive preparations to manufacture their "sensible fluter." The roller of this fluter will be made 2½ inches in diameter, which will make it work much easier and flute much better than any of the easier and flute much better than any of the small roller fluters. The roller fluting plate and stand will all be nickel plated, and two heaters will be furnished with each fluter, so that the fluter may be kept constantly at work without having to stop to heat the heating iron. This company are also preparing to manufacture their patent combination spider and steamer on a large scale, and will in a short time start their works on full time with a full complement of men.

with a full complement of men.

The Kent Iron Co. are running their fur-

nace and making four casts daily.

Messrs. Delamater & Co., New York city, Messrs. Delamater & Co., New York city, speak of business as more active, their works giving employment to 600 men. Among their recent contracts is a wooden launch, to be fitted with double engines, for the Light House Board. The hull is building by Carl, at City Island. At the same foundry they have orders from the Pictet Artificial Ice Company, for the construction of several machines which are said to make ice at a cost not exceeding \$1 per ton. ce at a cost not exceeding \$1 per ton.

PENNSYLVANIA.

The firm of Evans & Baird, agricultural machine manufacturers, of West Chester, are in the hands of the sheriff.—Norristown Herald.

The Plymouth furnaces at Conshohocken

are both at work now and doing well.

All the furnaces in the pipe mill of the Reading Iron Co. were idle last week and undergoing repairs. A new furnace, to be known as Furnace No. 4, is being built.

The furnace of the Warwick Iron Co.

week before last yielded 338¼ tons of iron—
the largest by far ever made by any furnace
in the Schuylkill Valley.
The rail mill of the Allentown Rolling Mill

started up Monday morning, the 22d ult., having received an order for 300 tons. This will keep the mill in operation one week. If additional orders are received work will continue a longer time.

The coal works of Lee & Co. at Rock

Point have not been doing much for a few weeks, owing to some difficulty with their diggers. The Harmony bank employs about 50 men, and is working.

The coal works of Davidson, Green & Co.

At Wampum, under the supervision of Mr. J. M. Davidson, are running steadily, and have been doing a fair business for some time past. They now employ about 50 miners, and will add more to their force as

riness revives.

The Lawrence Ore Co. are now operating their ore banks at Wampum, and give em-

Dioynent to about 60 men.

We clip the following from the Sharon
Herald of the 26th ult.: For the week closing the 20th, at the Kimberly Mill, puddle, guide, and both hoop mills double turn; bar mill single. The difficulty among the nail feedsingle. The difficulty among the nail feeders, noted last week, is settled amicably to both parties, and the nailers and feeders are both parties, and the nailers and feeders are clicking away just as though nothing had happened to disturb the good feeling between employer and employed. Keel Ridge Furnace is working smooth and good. At the Westerman Mill, puddle and guide mills double turn; bar, sheet and hoop mills, single turn; nail factory on four days; chain factory, all the fires working, and about one month behind their orders. Both blast furnaces doing extremely well. Slag furfurnaces doing extremely well. Siag fur-

#### B. KREISCHER & SON, New York Fire Brick & STATEN ISLAND

CLAY RETORT WORKS. Established 1845. Office, foot of Houston Street, East Rever,

The largest stock of Fire Brick of all shapes and sizes on hand, and made to order at short notice. Capela Brick, for McKenzle Patent, and others. Fire Mortar, Ground Brick, Clay Jad Band. Superior Kaolin for Rolling Mills and Foundries. Stone Ware and other Fire Clay and Bard. from my own mines at New Jersey and State Island, by the cargo or otherwise.

NEW YORK.

#### NEWTON & CO.,

ALBANY, N. Y., Manufacturers

#### BRICK FIRE Stove Linings,

Range and Heater Linings Cylinder Brick, &c., &c,

# M. D. Valentine & Bro

#### FIRE BRICK And Furnace Blocks DRAIN PIPE & LAND TILE. Woodbridge, - - - N. J.

A. HALL & SONS, Perth Amboy, N. J. HALL & SONS, Buffale, N. Y.

ESTABLISHED 18 FIRE BRICK

of reliable quality for all purposes, manufactured o the best New Jersey Fire Clays. Also, Architectura Terra Cotta, Fire Clay, Fire Sand, Kaolin, Ground Fire Brick and Diamantine Building Brick.

#### Brooklyn Clay Retort FIRE BRICK WORKS.

urfacturers of Clay Retorts, Fire Bricks, Ga e and other Tile, Cupola Brick, &c. Dealers in Hiners of Fire Clay and Fire Sand, Clay bank at a Creek, New Jersey. Manufactory: Van Dyke, eth, Richards and Partition Sts., Brooklyn, N. Y. No. 88 Van Dyke St.

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and Enameled Clay Retort Works.

ADAM WEBER, Proprieter.
Office, 633 E. 15th St., N. V. Clay Retorts, Knameled for Gas Houses; Retorts for burning raw bone and re-burning bone for Bone Black, Fire Bricks, Fire Blocks, Cupola and Stange Bricks of all shapes and stass The best fire clay from my own Clay Beds at Porth Amboy, N. J.

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For Rolling Mills, Blast Furnaces. Foundries, Gas Works, Lime Kilns, Tanneries, Boiler and Grate Setting, Glass Works, &c. FIRE CLAYS. FIRE SAND, AND KAOLIN FOR SALE

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FIRE BRICK, Tuyeres, Tiles, Blast Furnace Blocks, etc. Miners and Dealers in Woodbridge Fire Clay and Sand, and Staten Island Kaolin.

Established 1864.

#### CARDNER BROTHERS, MANUFACTURERS OF STANDARD SAVACE Fire Brick, Tile & Furnace Blocks,

Clay Gas Retorts and Retort Settings

Miners and Shippers of Fire Clay. Office: 376 Penn Ave., Pittsburgh, Pa. Works: Mt. Savage Junction, Md., and Lockport, Pa

# BORGNER & O'BRIEN,

Fire Bricks, Clay Gas Retorts, Retort Settings,

> Tiles, Blocks, &c., &c. 23d St., below Vine, PHILADELPHIA

Eighteen years' practical experience CYRUS BORGNER. WM. J. O'BRIEN

# CHAS. N. BACON.

Patent Felt Buffer Wheels for Hardware and Cutlery Manufacturers, Brass Finishers, Nicke. Platers, Jewelers, &c. Felt for Bollers and Steam Pipes, Harness Makers, &c. Patent Black Board Erasers.

Office & Salesroom 22 Exchange Place Boston.

# SPECIAL NOTICE.

Having learned that some of the Oxford Patent Welded Shovels first produced by us have failed to give satisfaction, owing to the imperfect manner in which they were welded, we would explain that this was owing to the defective machinery first used by us, and would state that, as soon as the defect was ascertained we employed improved machinery, and are now able to guarantee them perfectly welded and strong in every respect, and that they will give entire satisfaction.

All Oxford Shovels, Spades or Scoops that fail to hold at the weld will be replaced by us with good ones without cost to the purchaser.

Respectfully,

# B. ROWLAND &

No. 27 N. Fifth Street, PHILADELPHIA.

working. Stewart Furnace No. 2 purpose of canning and preserving fruits and vegetables.

The buildings of the cast steel department working up to her average, and not gaining any on the E. & P. Railroad.

no new hands are employed to take the places of those who quit voluntarily and remove from Reading and engage in other

remove from Reading and engage in the remove from Reading Iron Company, who employ between 700 and 800 hands in their rolling mill, tube works, nail factory, furnaces, machine shop, foundry and forge, paid out some \$30,000 last Saturday afternoon.

A change in the management of the North Lebanon Furnace, at Lebanon, is announced in the Lebanon News, based on a rumor.

The Pomeroy Coal Co. have remove contract with the miners in the Peacock and Dabney banks at the old price, 2 cents per bushel.

At Leetonia the Grafton mine employs about 70 men and is running about two-thirds time. The Leetonia mine employs about 80 men and runs two-thirds time.

The coal banks in Liberty township, near Youngstown, are in full operation again, the past 25 years or more with entire accep-tance, and to whose skill and energy the succossful operations of the furnace is large-y due. Mr. Forney was among the first managers to undertake the manufacture of iron with anthracite coal, which led to its general adoption and a subsequently increased production. Mr. Forney, it is reported, will be succeeded by Mr. Horace Brock, of Philadelphia, who will assume the management on July 1st.

management on July 1st.

The Steel Works at Beaver Falls are running to their full capacity, and are still behind with orders.

The Beaver Falls saw works are very busy, and running to their full capacity. They have received an order for a band saw 60 feet long and 9 inches wide, the largest ever made.

ever made.

It is said that Ihmsen, Lake & Co., are talking of starting up their coke works at Everson, on the Mount Pleasant branch.

The Williamsport Gazette and Bulletin says: "Thus far this month the Messrs. Snyder Brothers have shipped one of their manufacture of the Parker shingle machines. to L'Anse, on Lake Superior; one to Jack-sonville, Florida; one to Marion, North Carolina, and one to Brazil, South America. These machines have been greatly improved by patents obtained by the manufacturers, making them much superior to the original invention."
Stokes & Parrish, Philadelphia, are now

Stokes & Parrish, Philadelphia, are now putting in at the Glamorgan Furnaces, Lewistown, one large hydraulic double-action elevator, which handles two platform cars at once, lifting ore and coal to the top of the stack. This firm has also just put in for the Standard Oil Co., New York, four double-drum hoists which handle two batches at once. They have also put up a fine hydraulic passenger elevator at the Bingham House and another one at Baltimore.

At the Black Diamond File Works, Philadelphia, G. & H. Barnett, proprietors, busi-

delphia, G. & H. Barnett, proprietors, business is said to be unusually active. They have been working for some time past with a full force of hands, but are unable to keep pace with their orders, some being from distant points—Mexico, Brazil and European

PITTSBURGH AND VICINITY.

The Great Western Gun Works, of Pitts-

The Great Western Gun Works, of Pittsburgh, have received an order from Norway for a lot of cartridges.

The Dexter Spring Co., at Hutton, are increasing their business very largely. They have shipped this year about 1000 Dexter springs, against 550 last year.

The coal tipple of Hays Bros., at Six Mile Ferry, was entirely destroyed by fire on Tuesday evening, the 23d ult. Loss, \$10,000. It is supposed it was struck by lightning.

A meeting of the directors of the Hawk's Nest enterprise was held in Pittsburgh week

Nest enterprise was held in Pittsburgh week before last. Statements from the different committees and clubs were made and a resolution passed to continue the efforts of the association. New officers and a new board of directors was elected, as follows: Isaac Cline, president; J. D. Smullen, secretary, and Wm. F. Willock, treasurer. Directors, and Will. F. Willock, treasurer. Difference, Hugo Drasher, A. D. Hamilton, John Brink-man and Thos. Martin. The Excelsior Glass Works are enlarging

their capacity. The furnace is to have larger oots, and six new shops are being got in

eadiness to start.

Hartley's Glass Works, Pittsburgh, are low running 10 pots on full time.

Evans, Sell & Co. propose to run 40 shops when they start their works.

The Keystone Glass Works, of Pittsburgh, working on a large order from

South America. The present order is for ooo dozen chimneys.

Hubbard, Bakewell & Co., ax and shovel

The West Virginia Fire Brick Company has been formed for mining, manufacturing, buying and selling fire-clay and its products. Her first charcoal on Monday, and with e principal office of the company to be at w Cumberland, Hancock county. The capital stock of the company is \$3,415, and

\$341.50 has been paid.

It is reported that the Lovell and Dana Coal Works have ceased operation entirely, throwing a large number of miners out of employ-

The following is the Board of Directors of the Mingo iron works, elected on Saturday, the 20th ult. M. W. Burt, Wm. Dean, D. J. McGarry, Jos. Graves, James Roberts, D. W. Murry and Geo. P. Linch. Maj. M. W. Burt was elected president, and Mr. Geo. A. Dean, treatment of ores and fuels, and Mr. Geo. A. Dean,

Any on the E. & P. Railroad.

The Oil City Boiler Works are to be removed to Jamestown, N. Y.

About 420 hands are employed in the P. & R. Car Shops, Reading, who are engaged in repairing passenger and freight cars, and work eight hours a day. No new cars of any kind are being built just now. While no men are suspended or have been discharged, no naw hands are employed to take the men.

men.

The Cherry Valley Rolling Mill at Leetonia has been leased for five years by the American Railway Supply Co.

The Pomeroy Coal Co. have renewed their contract with the miners in the Peacock and Dabney banks at the old price, 2 cents per bushel.

At Lectonia the Graffon mine complete.

running on full time and mining about 1200 tons per day.

The Youngstown Rolling Mill was idle week before last taking stock, but started up on Monday, the 22d ult., double turn.

The Morse Bridge Works, now building in this city, are rapidly approaching completion. We learn from conversation with one of the proprietors that they expect to have the works in operation in about three weeks. He says that the orders are accumulating so fast that it is absolutely necessary that they should get to work as soon as possible. In should get to work as soon as possible. In one day last week they booked orders for seven bridges, and contracts for building 15 bridges have already been made.—Youngs-town Register and Tribune.

Lawrence mill at Ironton was running

ouble turn last week.
Sarah Furnace is making a good article of ig iron from one-fourth blue and threeourths gray ore.

Messrs. Newton & Cox of Cleveland have

Messrs. Newton & Cox of Cleveland have just finished a new milling machine for their own use which they say is the largest in the United States. It is entirely automatic in its action, is quite unlike any other in use, and is made under patents owned by this firm. The firm have also recently added a large new planer to their plant, and have a new lathe now on the way here from the Next. They are row huilding in addition to East. They are now building, in addition to other work, a large milling machine. It is a splendid specimen of plain, solid, compact, honest workmanship. They have recently gone into the manufacture of milling machines, grinding machines and cutting-off machines, and are fully prepared to fill or-ders for work of this class. Since January 1st they have made large numbers of their patent self-feeding reamer, the new device of which is a screw point, making better work, the makers say, than any other reamer in use. They are shipping these and their twist drills, taps and dies, to many of the best machine shops in the country.

W. S. Craine & Co., of Cleveland, report beginning and any driver are reported.

business very good, and they are putting on new workmen every day. At present they employ 49 men, making general foundry work, machinery and light castings, stable furniture, iron settees and lawn furniture, pulleys and stock food steamers. They have

pulleys and stock food steamers. They have recently begun the manufacture of cornice machinery of late improved patterns.

It is reported that the Belfont Furnace will soon blow out, to remain idle for perhaps several months. The furnace was, so far as the hearth, bosh, &c., are concerned, never in better condition, and is working splendidly on native ore alone; she is making excellent iron at a figure never before reached here or perhaps elsewhere in the United States. United States.

The first order at the Oviatt Agricultural Works, Hudson, is for 10 wagons and 10

At a recent meeting of the North Chicago Rolling Mill stockholders the action of the directors in purchasing the Milwaukee mills was ratified. The company now propose to increase their capital stock to \$4,000,000. Of this five-eighths will represent the Chicago and three-eighths the Milwaukee

The Princess (Boyd county) Furnace was completed in the middle of May last and has been in continuous operation ever since Mr. John Griffith, who is now blowing the furnace, reports an average daily make of 18 tons of strictly No. 1 and No. 2 pig metal, which, considering her size, is a highly satisfactory result The work on the boiler stack of the Nor-

The work on the boiler stack of the Norzooo dozen chimneys.

Hubbard, Bakewell & Co., ax and shovel
manufacturers, Pittsburgh, are running full
time, employing several humdred men and
boys.

WEST VIRGINIA.

The West Virginia Fire Brick Company

Mathematical The work on the boiler stack of the Norton Iron Works, Ashland, is still progressing; the stack is about 110 feet high; there
is about 40 feet more to go on the top yet,
making the stack 150 feet high when finished. With the exception of the stack they
are ready to go to work at any time; the
stack will be finished in a week or two

continued fair weather will blow in on the The 5th of May.

Hunnewell Furnace was to go in blast last Monday. MISSOURI.

Joseph P. Card & Amos F. Hoffer, dealers in pig iron at St. Louis, have filed a petition in bankruptey. The liabilities are \$102,000; assets, \$117,000. Among the creditors is J.

the 20th ult. M. W. Burt, Wm. Dean, D. J. McGarry, Jos. Graves, James Roberts, D. W. Murry and Geo. P. Linch. Maj. M. W. Burt was elected president, and Mr. Geo. A. Dean, secretary.

One of our exchanges says: Since our last issue we have learned that Swift's Rolling Mill Co., of Newport, design constructing three reservoirs on their mill ground for the purpose of supplying the mills with water, the three to have a capacity of 2,000,000 gallons. This is done for the purpose of lessening the cost of water used in the establishment, which now consumes of our waterworks water an average of 100,000 gallons daily, costing, at 15 cents per thousand gallons, \$15 per day.

lons, \$15 per day.

A large portion of the Greenwood Foundry property at Cincinnati has been sold to a Baltimore firm for \$00,000. The building sible, and the furnace will, if possible, be put in blast again by the middle of May.

cent. scrap and 12 per cent. Glamorgan

broke at 21,000 lbs.

I have found that, in making strong mixtures by the addition of high grade irons or steel, we cannot exceed a transverse strength of 18,000 lbs, without increasing the hardness so that the castings are finished with difficulty. The quality of hardness in cast iron appears to correspond more nearly with density than any other quality, and al-though the tenacity and hardness generally coincide with density in the different grades of iron of the same make or from the same furnace, the density of any one make will furnace, the density of any one make will not indicate the hardness or tenacity of another, or different make with any degree of exactness. We have seen that in remelting iron for the purpose of purifying it and increasing the strength, in the best kind of furnace the removal of silicon and other impurities is accompanied by a change in the condition of the carbon, increasing the percentage of combined carbon, rendering the metal liable to shrink so that it will not fill sharp corners, causing an unsound casting and making it too hard for finish, and that this occurs before reaching the maximum of density and strength, thus limiting our efforts in this direction. We look then for some other method of treating cast iron, which we can hardly expect to be done in the blast furnace, but which may be started there.

We have also found that the most elaborate physical tests made to develop the laws showing the relation between density, tenacity and hardness, and how these qualitenacity and hardness, and how these quali-ties are affected by treatment, making dif-ferent grades in the blast furnace, the effect of remelting in the cupola, and continued of remelting in the cupola, and continued fusion in the reverberatory furnace and the effect of different modes of cooling and casting, have only given us laws which apply to some particular kind of iron, and we conclude that chemical analyses in connection with physical tests is the only method of determining the best kind of iron for foundry purposes and the best method of treating it in order to get it in the best possible. ing it in order to get it in the best possible condition for casting.

The ideal foundry iron for machinery

would seem to be pure iron in combination with sufficient free carbon to secure a sound, sharp casting; and this carbon finely and regularly distributed over closely aggregated crystals, which would insure high strength with proper degree of hardness—an iron which will endure a tensile strain of 40,000 lbs., and make a solid casting not too hard

There is such an intimate relation between carbon and silicon in cast iron, that it would be interesting and useful to know if it is possible to remove nearly all the silicon without causing the carbon to combine to such an extent as to make white iron. It would also be useful to know the following: 1st. The difference between a certain grade of pig iron of a given strength and hardness, of pig iron of a given strength and hardness, and iron of the same kind but lower grade, having the same strenth and hardness produced by remelting. 2d. The cause of hardness in cast iron and what elements increase it. 3d. The composition of iron having a maximum tenacity with minimum hardness. 4th. Will anything besides free carbon cause iron to melt liquid? 5th. Will this be effectual in iron containing a large percentage of tual in iron containing a large percentage of combined carbon? and 6th, What are the conditions which favor small and regular crystallization in soft iron?
ALTOONA, PA., April 8, 1878.

#### INDUSTRIAL ITEMS.

The fire in the furnace of the Katahdin Iron Works has been extinguished, and smelting operations will be closed for some two or three months. A crew of about 20 men will be kept busy digging ore and making shoreed ing charcoal. NEW HAMPSHIRE.

Lafayette Hall's nut and bolt factory at Newmarket was destroyed by fire last week. Loss, \$34,000; insurance, \$20,000.

VERMONT. The Tyler Foundry at Brattleboro', long

idle, and which was recently sold to other parties, is to be started up again for the manufacture of fine castings MASSACHUSETTS. The Lowell Machine Shop had a large con-

The Lowell Machine Shop had a large contract for machinery, to supply the Sagamore and Border City Mills, of Fall River, now so abruptly closed by the dishonesty of their treasurer, G. T. Hathaway. Only a little of this was completed, and none had been shipped, so that the loss to the corporation it is thought will be nothing. But about 200 men will have to be discharged, for a time

The upper portion of the old Atlantic Works, at East Boston, are now occupied by the American Arms Company, of which George Linder is president, Francis H. Ray mond, treasurer and business manager, and George H. Fox, superintendent. The business consists mainly in making light breech-loading shot-guns, and the resources of the factory are taxed to their capacity, the company, indeed, being behind their crders. They employ about 50 men at present, and intend shortly to have 100 actively at work

The Northampton Emery Wheel Company at Leeds, have re-elected Ira Dimock, president, and Col. J. L. Otis, clerk and treasurer; and these gentlemen, with L. B. Williams, S. B. Fuller and A. B. Clark, constitute the board of directors. The company is in excellent condition and the treasurer. is in excellent condition and the treasurer made a very gratifying exhibit of the result of the last year's operations. A good divi-dend was declared and a surplus remains in the treasury.

CONNECTICUT.

The business of the Northfield Knife Company has been augmented to such an extent that the mail facilities of the town have had to be increased for its accommoda-

The Windsor Locks Steel Works, which have 6 months orders ahead, recently suf-fered a delay of 10 days by the breaking of their main shafting.

The Scovill Manufacturing Company, of Waterbury, are putting up an exhibit of brass works and other articles at the Museum

of Industrial Art, in New Haven.
The Reynolds Bridge Knife Company are

# MEKICAN SCREW

Manufacturers of

# IMPROVED Gimlet Pointed Wood Screws, Patented

1876.

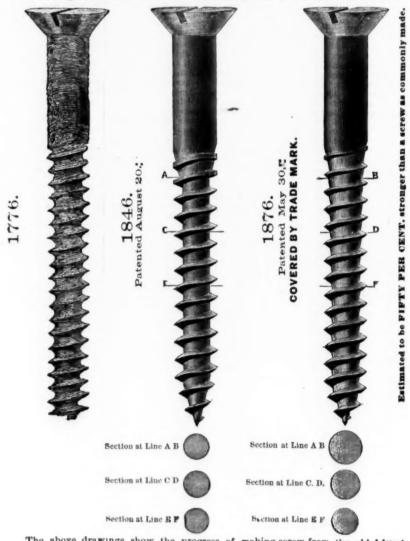


After forty years' experience we offer to the trade our Centennial Screw, patented May 30, 1876, as the best we have ever known.

The method of manufacturing is also patented, and we are changing our machinery as fast as possible, to manufacture the improved article only. To introduce them, they will be sold at same price as the old style screw.

The new sciews will be packed in manila colored boxes with new label covering end of box, and enlarged figures showing plainly contents.

To distinguish this screw we have adopted a trade mark, which is also secured to us.



The above drawings show the progress of making screw from the old blunt

point to style now adopted.

Experience has shown that the weak point of screws, as formerly made, is at the heel of the thread, where all the strains of forcing the screw into the wood naturally

To avoid the sharp angle existing in the old style of screws has been the aim of all manufacturers, but every expedient hitherto adopted has proved as objectionable as the evil complained of.

It will be seen in our **new screw** that not only is the sharp angle avoided, but the strength very much increased, as illustrated above. See sections at lines.

CLAIM.

"A Pointed Wood Screw having the outer periphery of the thread upon its body cylindrical, while a portion of the body below the thread and near the neck is conical, the remainder of the body to the point being cylindrical, and yet having all the thread brought to an edge of a constant angle, without jogs in the paths between the threads, substantially as described."

clearing away the debris of their recently-burned factory, preparatory to rebuilding. NEW YORK.

A very difficult casting was made at the Eagle Iron Works, Buffalo, last week. It consisted of a drum upon which the rope for drawing coal cars up an inclined plane was to be wound. The outside diameter of the drum was 5 feet, and its face 32 inches, with a flange 2 inches wide all around the rim on a nange 2 inches wide all around the rim on the inside on both edges, and a special groove for a 1½-inch rope running over the entire face of the drum. The hub was 10 inches in diameter and 18 inches long, with a 5-inch core through the hub and 2 sets of arms excore through the hub and 2 sets of arms extending from the hub to the rim. The entire mold for this casting was made in green sand, except those of the arms, which were made in dry-sand corps and laid in the center core. The latter was swept up into the desired shape, as was also the outside of the mold with the special groove, covering the entire face of the drum; 4500 lbs. of molten iron was required to pour the mold, and when the casting was turned out it was as perfect as if molded in dry sand or loam. To make castings of this shape and size is no great feat, as much larger drums than this one are turned out at some of the great feat, as much larger drums than this one are turned out at some of the foundries in the coal regions almost every week; but the molding of such a piece in green sand is something that scarcely one founder in a hundred would undertake to do, so that this casting is probably one of the most difficult ever made in green sand in this or any other country. In the coal regions where drums of this kind are made they are always molded in loam, and in many foundries plain pulleys of even less diameter than 5 feet are often molded in loam, because they do not possess the necessary pattern or ring. In the Eagle Foundry, however, all pulleys are molded or swept up in green sand, and under the direction of their experienced foreman, Mr. John Bowen, pulgreen sand, and under the direction of their experienced foreman, Mr. John Bowen, pulleys 12 feet in diameter, with a 30 inch face, have been swept up in green sand, and as perfect a casting turned out with it as could have been made with a loam mold, at a

have been made with a roam more, as a much less expense.

The Buffalo Scale Company have received orders from the Wheeling Iron and Nail Works for a 40-ton railroad track scale with their patent combination beam which dispenses with the use of weights, the weighing long explusively with the poises, thus penses with the use of weights, the weighing being done exclusively with the poises, thus avoiding the handling of weights and the trouble frequently caused by the loss or misplacement of weights. With the combination beam the tare may be taken off when weighing, thus obviating the necessity of figuring to ascertain the weights less the tare. They have also received orders from the same company for one of their furnace charging scales, which is arranged with a patent combination beam upon which the

charging scales, which is arranged with a patent combination beam upon which the weighing is done exclusively with the poises. It may be locked up so that the employees about the furnace cannot change the weights or know how the furnace is being charged. The Shepard Hardware Company of Buffalo are making extensive preparations to manufacture their "sensible fluter." The roller of this fluter will be made 2½ inches in diameter, which will make it work much easier and flute much better than any of the small roller fluters. The roller fluting plate and stand will all be nickel plated, and two heaters will be furnished with each fluter, so that the fluter may be kept constantly at work without having to stop to heat the heating iron. This company are also preparing ing iron. This company are also preparing to manufacture their patent combination spider and steamer on a large scale, and will in a short time start their works on full time with a full complement of men.

The Kent Iron Co. are running their furnace and making four casts daily.

Messrs. Delamater & Co., New York city, speak of business as more active, their works giving employment to 600 men.

Among their recent contracts is a wooden Among their recent contracts is a wooden launch, to be fitted with double engines, for the Light House Board. The hull is building by Carl, at City Island. At the same foundry they have orders from the Pictet Artificial Ice Company, for the construction of several machines which are said to make ice at a cost not exceeding \$1 per ton.

PENNSYLVANIA.

The firm of Evans & Baird, agricultural machine manufacturers, of West Chester, are in the hands of the sheriff.—Norristown

Herald.

The Plymouth furnaces at Conshohocken are both at work now and doing well.

All the furnaces in the pipe mill of the Reading Iron Co. were idle last week and undergoing repairs. A new furnace, to be known as Furnace No. 4, is being built.

The furnace of the Warwick Iron Co.

The furnace of the Warwick Iron Co. week before last yielded 338 4 tons of iron— the largest by far ever made by any furnace in the Schuylkill Valley. The rail mill of the Allentown Rolling Mill

having received an order for 300 tons. This will keep the mill in operation one week. If additional orders are received work will

continue a longer time.

The coal works of Lee & Co. at Rock
Point have not been doing much for a few
weeks, owing to some difficulty with their
diggers. The Harmony bank employs about so men, and is working.

The coal works of Davidson, Green & Co. at Wampum, under the supervision of Mr. J. M. Davidson, are running steadily, and have been doing a fair business for some time past. They now employ about 50 miners, and will add more to their force as business revives.

business revives.

The Lawrence Ore Co. are now operating their ore banks at Wampum, and give em-ployment to about 60 men.

ployment to about 60 men.
We clip the following from the Sharon
Herald of the 26th ult.: For the week closing
the 20th, at the Kimberly Mill, puddle, guide,
and both hoop mills double turn; bar mill
single. The difficulty among the nail feeders, noted last week, is settled amicably to
beth parties and feeders are ers, noted hast week, is settled anneaby to both parties, and the nailers and feeders are clicking away just as though nothing had happened to disturb the good feeling be-tween employer and employed. Keel Ridge Furnace is working smooth and good. At the Westerman Mill, puddle and guide mills double turn; bar, sheet and hoop mills, single turn; nail factory on four days; chain factory, all the fires working, and about one month behind their orders. Both blast furnaces doing extremely well. Slag fur-

#### B. KREISCHER & SON, New York Fire Brick & STATEN ISLAND CLAY RETORT WORKS.

Established 1845. Office, foot of Houston Street, East Rever, NEW YORK.

The largest stock of Fire Brick of all shapes and uses on hand, and made to order at short notice. Cupela Brick, for McKenzie Patent, and others. Fire Mortar, Ground Brick, Clay and Sand. Superior Kaolin for Rolling Mills and Foundries. Stone Ware and other Fire Clay and Sard. from my own mines at New Jersey and Saten Island, by the cargo or otherwise.

#### NEWTON & CO.,

PALMER, NEWTON & CO., LLBANY, N. Y., Manufacturers

#### BRICK FIRE Stove Linings,

Range and Heater Linings Cylinder Brick, &c., &c,

M. D. Valentine & Bro

#### FIRE BRICK And Furnace Blocks DRAIN PIPE & LAND TILE. Woodbridge, - - - N. J.

A. HALL & SONS, Perth Amboy, N. J. HALL & SONS, Buffale, N. Y.

FIRE BRICK

of reliable quality for all purposes, manufactured o the best New Jersey Fire Clays. Also, Architectura Terra Cotta, Fire Clay, Fire Sand, Kaolin, Ground Fire Brick and Diamantine Building Brick.

### Brooklyn Clay Retort

FIRE BRICK WORKS.

Manufacturers of Clay Retorts, Fire Bricks, Ga House and other Tile, Cupola Brick, &c. Dealers in House of Fire Clay and Fire Sand, Ci., Carle at Sur'ts Creek, New Jersey, Manufactory: Van Dyke, Lilsabeth, Richards and Partition Sta., Brooklyn, N. Y. Office No. 88 Van Dyke St.

#### MANHATTAN FIRE BRICK and Enameled Clay Retort Works.

ABAM WEBER, Proprietor.

Office, 633 K. 15th St., N. Y. Clay Retorts, Knameled for Gas Houses; Retorts for burning raw bone and re-burning bone for Bone Black. Fire Bricks, Fire Blocks, Cupola and Range Bricks of all snapes and sizes. The best fire clay from my own Clay Beds at Perth Amboy, N. J.

### Watson Fire Brick Manufactory

JOHN R. WATSON, Perth Amboy, New Jersey.

Manufacturer of

#### FIRE BRICK,

For Rolling Mills, Blast Furnaces, Foundries, Gas Works, Lime Kilns, Tanneries, Boiler and Grate Setting, Glass Works, &c. FIRE CLAYS, FIRE SAND, AND KAGLIN FOR SALE

#### HENRY MAURER,

Excelsior Fire Brick & Clay Retort Works,

Manufacturer of FIRE BRICK, HOLLOW
BRICK AND CLAY RETORTS.
WORKS PERTHAMOT, New JERSEY
Office & Depot: 418 to 429 East 23d St., N. Y

#### TROY FIRE BRICK WORKS

JAMES OSTRANDER & SON, ESTABLISHED 1848,

#### FIRE BRICK,

Tuyeres, Tiles, Blast Furnace Blocks, etc. Miners and Dealers in Woodbridge Fire Clay and Sand, and Staten Island Kaolin.

#### Established 1864. CARDNER BROTHERS.

STANDARD SAVACE

Fire Brick, Tile & Furnace Blocks. Clay Gas Retorts and Retort Settings,

Miners and Shippers of Fire Clay.

Office: 376 Penn Ave., Pittsburgh, Pa. Wonks: Mt. Savage Junction, Md., and Lockport, Pa

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PHILADELPHIA. Eighteen years' practical experience

CYRUS BORGNER.

WM. J. O'BRIEN

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Felting & Wadding Manufactory,
Winchester, Mass.

Patent Felt Buffer Wheels for Hardware and
Cultery Manufacturers, Brass Finishers, Nicke.
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The Reading Iron Company, who employ between 700 and 800 hands in their rolling mill, tube works, nail factory, furnaces, machine shop, foundry and forge, paid out some \$30,000 last Saturday afternoon.

A change in the management of the North Lebanon Furnace, at Lebanon, is announced

Lebanon Furnace, at Lebanon, is announced in the Lebanon News, based on a rumor. The present manager is Mr. Charles B. Forney, who has occupied that position during the past 25 years or more with entire acceptance, and to whose skill and energy the sucessful operations of the furnace is large-y due. Mr. Forney was among the first managers to undertake the manufacture of iron with anthracite coal, which led to its general adoption and a subsequently increased production. Mr. Forney, it is reported, will be succeeded by Mr. Horace Brock, of Philadelphia, who will assume the

management on July 1st.

The Steel Works at Beaver Falls are running to their full capacity, and are still

behind with orders.

The Beaver Falls saw works are very busy, and running to their full capacity. They have received an order for a band saw 60 feet long and 9 inches wide, the largest

It is said that Ihmsen, Lake & Co., are

It is said that Inmsen, Lake & Co., are talking of starting up their coke works at Everson, on the Mount Pleasant branch.

The Williamsport Gazette and Bulletin says: "Thus far this month the Messrs. Snyder Brothers have shipped one of their manufacture of the Parker shingle machines to L'Area on Lake Survice. to L'Anse, on Lake Superior; one to Jacksonville, Florida; one to Marion, North Carolina, and one to Brazil, South America. These machines have been greatly improved by patents obtained by the manufacturers, making them much superior to the original

Stokes & Parrish, Philadelphia, are now Stokes & Parrish, Philadelphia, are now putting in at the Glamorgan Furnaces, Lewistown, one large hydraulic double-action elevator, which handles two platform cars at once, lifting ore and coal to the top of the stack. This firm has also just put in for the Standard Oil Co., New York, four double-drum hoists which handle two batches at once. They have also put up a fine hydraulic passenger elevator at the Bingham House and another one at Baltimore.

At the Black Diamond File Works, Phila-

PITTSBURGH AND VICINITY.

The Great Western Gun Works, of Pitts-

The Great Western Gun Works, of Pittsburgh, have received an order from Norway for a lot of cartridges.

The Dexter Spring Co., at Hutton, are increasing their business very largely. They have shipped this year about 1000 Dexter springs, against 550 last year.

The coal tipple of Hays Bros., at Six Mile Ferry, was entirely destroyed by fire on Tuesday evening, the 23d ult. Loss, \$10,000. It is supposed it was struck by lightning.

A meeting of the directors of the Hawk's Nest enterprise was held in Pittsburgh week before last. Statements from the different committees and clubs were made and a resobefore last. Statements from the different committees and clubs were made and a resolution passed to continue the efforts of the association. New officers and a new board of directors was elected, as follows: Isaac Cline, president; J. D. Smullen, secretary, and Wm. F. Willock, treasurer. Directors, Hugo Drasher, A. D. Hamilton, John Brinkman and Thos. Martin.

The Excelsion Glass Works are enlarging

The Excelsior Glass Works are enlarging their capacity. The furnace is to have larger pots, and six new shops are being got in

2000 dozen chimneys.

Hubbard, Bakewell & Co., ax and shovel

w Cumberland, Hancock county. The 5th of May. capital stock of the company is \$3,415, and \$341.50 has been paid.
It is reported that the Lovell and Dana Coal

Works have ceased operation entirely, throwing a large number of miners out of employ-

The following is the Board of Directors of the Mingo iron works, elected on Saturday, the 20th ult. M. W. Burt, Wm. Dean, D. J. McGarry, Jos. Graves, James Roberts, D. W. Murry and Geo. P. Linch. Maj. M. W. Burt was elected president, and Mr. Goo.

purpose of canning and preserving fruits

and vegetables.

The buildings of the cast steel department of the Burgess Steel and Iron Works of Portsmouth, lately burned down, have been replaced, and this part of the works is again in active operation. We understand that these works have been doing a more extensive business this season than ever before, disposing of large quantities of their steel. They now steadily employ from 100 to 125 men.

men.

The Cherry Valley Rolling Mill at Leetonia has been leased for five years by the American Railway Supply Co.

The Pomeroy Coal Co. have renewed their contract with the miners in the Peacock and

Dabney banks at the old price, 2 cents per

At Lectonia the Grafton mine employs about 70 men and is running about two-thirds time. The Lectonia mine employs

about 80 men and runs two-thirds time.

The coal banks in Liberty township, near Youngstown, are in full operation again, running on full time and mining about 1200 tons per day.

tons per day.

The Youngstown Rolling Mill was idle week before last taking stock, but started up on Monday, the 22d ult., double turn.

The Morse Bridge Works, now building in this city, are rapidly approaching completion. We learn from conversation with one of the proprietors that they expect to have the works in operation in about three weeks. He says that the orders are accumulating so fast that it is absolutely necessary that they should get to work as soon as possible. In should get to work as soon as possible. In one day last week they booked orders for seven bridges, and contracts for building 15 bridges have already been made.—Youngstown Register and Tribune.

Lawrence mill at Ironton was running

Lawrence mill at Ironton was running double turn last week.

Sarah Furnace is making a good article of pig iron from one-fourth blue and three-fourths gray ore.

Messrs. Newton & Cox of Cleveland have Messrs. Newton & Cox of Cleveland have just finished a new milling machine for their own use which they say is the largest in the United States. It is entirely automatic in its action, is quite unlike any other in use, and is made under patents owned by this firm. The firm have also recently added a large new planer to their plant, and have a new latte now on the way here from the new lathe now on the way here from the East. They are now building, in addition to other work, a large milling machine. It is a splendid specimen of plain, solid, compact, honest workmanship. They have recently gone into the manufacture of milling machines, grinding machines and cutting-off machines, and are fully prepared to fill or-ders for work of this class. Since January 1st they have made large numbers of their patent self-feeding reamer, the new device

double-drum hoists which handle two batches at once. They have also put up a fine hydraulic passenger elevator at the Bingham House and another one at Baltimore.

At the Black Diamond File Works, Philadelphia, G. & H. Barnett, proprietors, business is said to be unusually active. They have been working for some time past with a full force of hands, but are unable to keep pace with their orders, some being from distant points—Mexico, Brazil and European countries.

PITTSBURGH AND VICINITY.

furniture, iron settees and lawn furniture, pulleys and stock food steamers. They have recently begun the manufacture of cornice machinery of late improved patterns.

It is reported that the Belfont Furnace will soon blow out, to remain idle for perhaps several months. The furnace was, so far as the hearth, bosh, &c., are concerned, never in better condition, and is working splendidly on native ore alone; she is making excellent iron at a figure never before reached here or perhaps elsewhere in the United States. United States. The first order at the Oviatt Agricultural

Works, Hudson, is for 10 wagons and 10

ILLINOIS.

At a recent meeting of the North Chicago At a recent meeting of the North Chicago Rolling Mill stockholders the action of the directors in purchasing the Milwaukee mills was ratified. The company now propose to increase their capital stock to \$4,000,000. Of this five-eighths will represent the Chicago and three-eighths the Milwaukee

pots, and six new shops are being got in readiness to start.

Hartley's Glass Works, Pittsburgh, are now running 10 pots on full time.

Evans, Sell & Co. propose to run 40 shops when they start their works.

The Keystone Glass Works, of Pittsburgh, are now working on a large order from South America. The present order is for ton Iron Works, Ashland, is still progress-The Princess (Boyd county) Furnace was completed in the middle of May last and has been in continuous operation ever since. Mr. John Griffith, who is now blowing the

The work on the boiler stack of the Nortzooo dozen chimneys.

Hubbard, Bakewell & Co., ax and shovel manufacturers, Pittsburgh, are running full time, employing several huadred men and boys.

WEST VIRGINIA.

The West Virginia Fire Brick Company has been formed for mining, manufacturing, buying and selling fire-clay and its products. The principal office of the company to a second with the exception of the stack they are ready to go to work at any time; the stack will be finished in a week or two.

Mt. Savage Furnace commenced receiving horizontal fair weather will blow in on the continued fair weather will be stack is about 110 feet high; there is about 120 feet more to go on the top yet, making the stack 150 feet high when finished. With the exception of the stack the Nortzon ing; the stack is about 120 feet more to go on the top yet, making the stack 150 feet high; there is about 120 feet more to go on the top yet, making the stack 150 feet high; there is about 150 feet high when finished.

continued fair weather will blow in on the

Hunnewell Furnace was to go in blast last

MISSOURI.

Joseph P. Card & Amos F. Hoffer, dealers in pig iron at St. Louis, have filed a petition in bankruptcy. The liabilities are \$162,000; assets, \$117,000. Among the creditors is J.

was elected president, and Mr. Geo. A. Dean, secretary.

One of our exchanges says: Since our last issue we have learned that Swift's Rolling Mill Co., of Newport, design constructing three reservoirs on their mill ground for the purpose of supplying the mills with water, the three to have a capacity of 2,000,000 gallons. This is done for the purpose of lessening the cost of water used in the establishment, which now consumes of our water works water an average of 100,000 gallons. St.

sening the cost of water used in the establishment, which now consumes of our water-works water an average of 100,000 gallons daily, costing, at 15 cents per thousand gallons, \$15 per day.

A large portion of the Greenwood Foundry property at Cincinnati has been sold to a Baltimore firm for \$60,000. The building has been refitted and will be used for the

The company have arranged with the Roane Iron Company to furnish the latter steel pig for their works, which will employ their en-tire capacity, and thereby for the present take the product of this furnace out of the

general Southern market.

The determination about reached by the people of Cincinnati to push their Southern road through to Chattanooga will have a good effect on the iron and other industries road through to Chattanoga will have a good effect on the iron and other industries of the South. Work can hardly begin on the line before the middle of June, and the road cannot be finished sufficiently to be available throughout its length before the beginning of 1879. All the large bridges are built; the road-bed only needs surfacing and overhauling. The iron for all but 61 miles is in hand, and the necessary ties for most of the unfinished part of the road are out. And as the portion to be finished is the only part of it which will open coal and iron mines, it will empty he beginning creater considerable the fine neutral secular oreas of Nelson. it which will open coal and iron mines, it will from the beginning create considerable business on its own account, as well as put much money in circulation in the Southern manufacturing country. Hon. J. B. Killebrew, commissioner of Ag-

Hon, J. B. Killebrew, commissioner of Agriculture, Mines and, Immigration, of Tennessee, is preparing an elaborate work on Tennessee mines, agriculture and manufacture. Mr. Killebrew is one of the most enlightened and laborious workers in his departments in the Union. His works have done very much to diffuse abroad just views of his State and section. He will soon begin of his State and section. He will soon begin of his State and section. He will soon begin a series of articles in *The Iron Age*, which will be of great value to those desiring accu-rate knowledge of the mines, manufactures, agriculture and commerce of the South generally and of Tennessee particularly.

GEORGIA.

Bartow Furnace, near Cartersville, which was blown out the latter days of January, was put in blast again on March 25th, and is now making an average of 25 tons of mill iron daily. The product will be worked up by the Vulcan Mills at Chattanooga. The ore used is brown hematite of superior quality, and the iron is highly prized for general mill purposes and by nail makers.

#### Rapid Transit Assured.

A dozen handsome cars for the Gilbert Ele-A dozen handsome cars for the Gilbert Elevated Railroad Company have arrived from the Pullman Palace Car Works in Detroit, and are surrounded all day long by persons who curiously observe the upholstery, running gear and other arrangements. The cars are of a pea-green color, 44 feet in length, and in shape, hight and general proportions much like the regular Pullman car. The chief peculiarity is in the short leather covered seats arranged on either side, longi-The chief peculiarity is in the short leather covered seats arranged on either side, longitudinally. There are two end platforms with spring gates. The windows are of plate glass. The wheels are from the Hudson Paper Car Wheel Company, John E. Gillette, president, and among other novelties are Bissell's patent bearings, which reject the lateral various of account named paper. sist the lateral motion of a car, and never heat, while Eames' patent brake will put a check on speed when necessary. Each car cost \$4000, the whole contract for 60 cars amounting to \$240,000. The passenger station at the corner of Church street and Park Place is now in course of erection, to the disgust of adjacent property owners, some of whom suffer severely, also tenants who have

The first locomotive arrived at Pier No. 1 North River, Saturday afternoon last. It was soon afterward transferred from the steamsoon afterward transferred from the steamboat to the Church Street Horse Railroad, and drawn by horses to the inclined plane erected in the rear of Trinity Church. It was drawn up the plane by the power of a stationary engine, and was in position on the rails of the elevated road by 7 o'clock. The locomotive is the first of 25 to be placed on the line, and is known as No. 1. It was built at Paterson, N. J., by the Grant Locomotive Works. It is claimed that it has sufficient power to propel six cars, but it will not be required to draw or drive more than four. Its weight is 14 tons. Its cylinder is 10 inches and stroke of piston 16 inches. It is calculated that it will use from 500 to 800 pounds of coal daily. The new locomotive has eight wheels, four on each side. The two pair of end wheels are guiding or trailing wheels, and are used for steering the locomotive around the sharp curves on the road. This is the peculiar feature in its construction. The other wheels are drivers, and sustain the weight of the locomotive. After being thoroughly boat to the Church Street Horse Railroad. wheels are drivers, and sustain the weight of the locomotive. After being thoroughly oiled and examined steam was gotten up and it was run up and down the road as far as Duane street twice. The machinery worked smoothly and the adjustment of the worked smoothly, and the adjustment of the tires to the tracks proved to be as near persible. Superintendent Van Brock lin says that the remaining locomotives will be ready within ten days and that the road be ready within ten days and that the road will then be put in operation. A short trial trip was made on Monday with the engine and one car, but owing to some defect in the hydrant, which did not let enough water up the supply pipe for the locomotive boiler, it was not entirely satisfactory. On Tuesday a train of four cars, having on board a number of gentlemen connected with the read and others who have taken an the road and others who have taken an interest in rapid transit, made a successful trip to Fifty-ninth street and back. The journey from Trinity Church to Central Park occupied only 16 minutes.

#### The Iron Industry at Richmond, Va. 215 Federal Street,...

A correspondent, writing from Richmond under date of the 13th ult., says:

I give you below a statement of the iron foundries, machine shops, rolling and nail mills in Richmond, although it does greatinmills in Richmond, atmough it does great injustice to this interest to gather its statistics in this time of depreciation and prostration. The Tredegar Works alone, before the war, employed more men than all the establishments. employed more men than all the establishments now aggregate. Employees, 1640; machinery and tools, value, \$585,175; real estate, value, \$795,900; sales for 1877, \$2,128,650. The pig and scrap iron consumed equals 23,300 gross tons in about equal proportions. The closing months of 1877 marked a revival in the iron business of this city which has been fully maintained till this date in 1878. Nearly all the workmen in this branch belonging to our city are now employed, which could not have been said of them at any previous time since the panic. of them at any previous time since the panic.
There is a cheerful spirit among our iron
men which greatly helps to establish confidence in the future prosperity of this branch

of our industries. of our industries.

As to the general condition of the iron interest throughout the State of Virginia I cannot write favorably. You know that four-fifths of our furnaces are idle. One-half of the proprietors have been ruined, and the isolated location of many of these cithers are the statement of the contract of the

the fine neutral specular ores of Nelson county, and vice versa. These latter ore fields can be supplied with West Virginia coke, which must stimulate the building of new furnaces among them for the utiliza-tion of these valuable ores now lying com-paratively useless. This railroad link unites the Chesapeake and Ohio Railroad at Covington with the James River and Kanawha Canal at Buchanan. It will be about 23 miles in length.

Another new gold field has just been de-eloped. The Eldorado this time is the Is-Another new gold field has just been developed. The Eldorado this time is the Island of Papua, or New Guinea. The gold is found in black sand, in small scales, and also in quartz rocks. Vessels have already sailed from numerous parts of Australia to prospect these new fields. The intelligent reader will remember that this great island—some six times as large as the State of Illinois—lies between 6 and 17 degrees of south latitude, and 130 and 151 degrees of east longitude, and 130 and 151 degrees of east longi-tude. It is 1500 miles long and its maximum width is about 400 miles. Some of its mountains are 13,000 feet high. Its native population is supposed to number a million. Gold hunters will be confronted by tattooed, fierce and warlike natives and an inhospitable climate; but myriads will be found to brave anything for gold.

### Torrey's Door Springs GIRARD WRENCH: MFG. CO., Girard, Pa.

Ice Cream Freezers.



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Engineers, Machinists, Iron Founder and Boiler Maker ROBT. WETHERILL & CO. Chester Pa.



The Perfect DOOR STOP AND HOLDER, Will catch and hold the door every time, and no wind can blow it loose. It saves the wall, the paper, glass and slamming of doors. Liberal Discount to the Trade. Address, SPENGLER & CO., East End, Pittsburgh, Pa.

DRY AND TARRED SHEATHING, AND ALL KINDS OF BUILDING; PAPERS.

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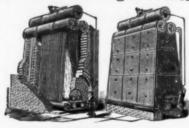
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FIRMENICH Safety Steam Boiler.

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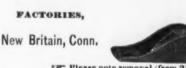
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BRIGHT BUTTS, orders for which are solicited. WAREHOUSE: 79 Chambers St., New York. STANLEY, RULE AND LEVEL CO.

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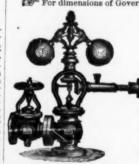


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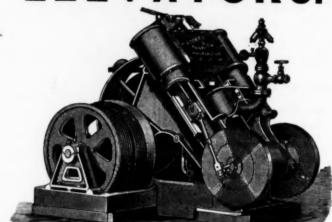
It is a common method to adver-tise Governors without cost, un-less satisfactory to the customer, and then charge High Prices for doing what any good Governors in-ferior to the "Judson" are sold in this way, operating well enough for three months, to insure collec-tion of the pay, but becoming use-less after a year's wear—their con-struction lacking durability. The Judson Governor is guaranteed to less after a year's wear—their construction lacking durability. The Judson Governor is guaranteed to be not only the best Regulator of Steam Engines, but also the most durable Governor made. Parties in buying other Governors should stipulate that their durability be guaranteed, and should also take care that they do not, for much inferior Governors, pay higher prices than those shown in the accompanying list. We guarantee the Judson Governor will do all any other Governor can do, and in accuracy and durability—the main essentials—we guarantee it shall do more. Reduced Price List, FEBRUARY 1, 1877.



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# Bridgewater Iron Co.'s INDEPENDENT STEAM ELEVATOR ENGINE,

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#### Tennessee Land Titles.

There has been a great deal said and written about the defective character of titles to much of the land in Tennessee, particularly in the mountain districts where most of the mineral deposits are found. It is quite true that the titles by which professed owners hold a good deal of this territory are not valid, and that much of it is nominally owned by mere squatters who never had a legal right to a foot of it. There never has en a systematic survey made of any portion of Tennessee, except West Tennessee and a small area around Chattanooga, known as the Ocoee District. The lands were originally disposed of by State authority, and the busi-ness was done in the most crude and careless ness was done in the most crude and careless fashion. The bottom, cove, and valley lands were taken by actual settlers, for purposes of cultivation. The metes and bounds of plantations were ascertained, and these parcels of land have either descended or been conveyed regularly for two or three genera-tions. Any one buying a farm in Tennessee is as certain to get a good title as he would if buying in any other State, provided he exercises ordinary caution as to mortgages,

judgment liens, &c.
But the original titles to the mountain and But the original titles to the mountain and hill lands were not obtained with a view to settlement. Forty years ago these lands were not considered to be of any value, except as hunting grounds and cattle ranges. Their worth as mineral lands was not dreamed of by the men who entered them by the thousands of acres, on speculation, and at nominal prices. They were taken in immense tracts by citizens of the Carolinas, who, not attaching much importance to their purchases, were naturally not very particular or exact as to the manner in which the surveys were performed on which their grants were founded. These grants lapped one upon the other, as the same surveyors did not by any means make all the surveys within any given territory, and none of these within any given territory, and none of these artists were very particular in establishing corner stones, witness trees and other mon corner stones, witness trees and other mon-uments to designate where they had traced lines and made angles. There seems to have been great activity in the business of enter-ing these mountain lands from 1834 to 1840. The taxes on these tracts were not paid in many instances, and poor people who had squatted on them bid them off at tax sales, squatted on them bid them off at tax sales, acquiring some sort of title. Then the Supreme Court of the State decided that holding absolutely undisturbed possession of realty for a term of seven years under color of title, made such color of title a fee simple. That decision, rendered about 1856, quieted both possession and title in and to hundreds of thousands of acres.

Each successive Legislature has tried its

Each successive Legislature has tried its hand at devising some measure whereby the titles to these bodies of land in Tennessee to which the paper titles were confused could be ascertained and rendered safe and certain. These efforts have been failures, and tain. These entits have been thrown upon the courts for relief. And the relief, though long delayed in some instances, has been certain wherever properly sought. There is absolutely no necessity for failure to obtain good lutely no necessity for failure to obtain good titles to any tract of valuable timber or mineral lands in Tennessee, though such title cannot be had by purchase from the first person an investor meets who claims to be the owner of a given parcel. The proper way for those desiring to purchase lands in Tennessee to proceed is to secure the services of a competent and responsible agent, and give him power to make surveys, secure abstracts, and do all things necessary to be done to get to "the bottom grant," or at least to a sure legal tenure.

legal tenure.

Tracts in single bodies covering 50,000 acres have been purchased by coal and iron companies, and perfect titles secured to every foot of them. But the purchasers had the wisdom to expend some labor, pains and money to make assurance sure. And even adding these necessary expenditures to the purchase money the companies referred to bought the cheapest mineral lands of the kind on the Continent. There is no foundation for the assertion made in interested quarters that all the best mineral lands of Tennessee are either in litigation or are liable to be on account of defects and colli-Tennessee are either in litigation or are liable to be on account of defects and collihable to be on account of detects and colli-sions and duplicity of titles. These cases are the exceptions. Nearly all the most valua-ble mines of coal and iron, and nearly all the land where these minerals are likely to be found are covered by absolutely good titles, and those not so covered can be re-duced to legal and certain ownership at comparatively small expense. Many large comparatively small expense. Many large tracts of the best mineral lands, full of coal, iron, valuable marble and building stone, &c., near lines of railway, can be purchased in the State of Tennessee, including all expense for clearing up titles, at prices which in Northern mineral regions would be considered merely nominal. The ridiculous cheapness of these lands has deterred investors from putting their money in them on cheapness of these shads has deterred investors from putting their money in them on speculation, their very cheapness conveying the belief that they ware intrinsically worthless, or that there can be no certainty in the titles. In point of fact both conclusions are exactly the reverse of true.

#### The New Steamers for the Brazilian Trade.

The steamship City of Rio de Janeiro, the first vessel of the new and only American line to Brazil, is open to the inspection of the public, at Pier No. 77, East River. She was built by John Roach & Son, at Chester, Fennsylvania, and is son, at Chester, Fennsylvania, and is a magnificent vessel. Her dimensions are: Length over all, 370 feet; beam, 39 feet; depth of hold from base line to top of the spar deck, 31 feet 6 inches; burden, 3500 tons; mean draft, 21 feet. Her engine is of the compound type, the low pressure cylinder being 78 inches in diameter, and the high pressure, 42% inches. The pistons have a stroke of 5 feet. Her boilers are six in number, and the ordinary steam pressure is 80 pounds. There is a surface condense, provided with 1000 feet converse. pressure is 80 pounds. There is a surface condenser, provided with 4000 feet composition tubing and independent air and circulation pumps. The vessel is provided with two sets of steering goar, one worked by steam and the other by hand-power. The latter is meant to be used only in case the former should be disabled. On the main deck are several large ice houses and an iceEstablished 1838.

# THE HART, BLIVEN & MEAD MFG. CO.,

# GENERAL HARDWARE.

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Shelf Brackets.

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Sash Lock and Lift.

Burglar Proof Sash Fasteners.

The Cheapest and Best ever offered to the trade.



Full Size Cut of Nos. 95 and 095. No. 95, Figured Enameled. No. 095, Solid Bronze Metal.

Full Size Cut of Nos. 261, 263 and 0263. Patented.

SHOWING SASH FASTENER LOCKED. No. 261, Figured Enameled. No. 263, Nickel-Plated. No. 0263, Solid Bronze Metal.

Figured Enameled Bottom Bolts.



Full Size Cut of No. 10. Patented.

making machine having a capacity of 5000 pounds a day.

The appointments of the saloons and state rooms of the vessel are perfect. The floors of the saloons are of hard wood, and are covered with soft crimson Wilton carpet, figured with dark green foliage. Paths are marked out with fine coon "runners". figured with dark green foliage. Paths are marked out with fine cocoa "runners." The carpets and the "runners" are kept down with large headed brass nails, whose shafts are sunk and fit tightly into brass eylinders. These nails can be drawn up without injury to the fabric, and are used because it is intended to remove warm floor covering while the steamer is in the hot climate of Brazil. Crimson lambrequins edged with deep fringe, depend from the cornices of the saloon windows. The woodwork in the saloons is of an artistic and elaborate character, six kinds of wood and elaborate character, six kinds of wood being used—maple, black walnut, French walnut, bird's-eye maple and satinwood. walnut, bird's-eye maple and satinwood. The state rooms are perfectly appointed, nothing being absent from their furnishing that would be provided in the chambers of a first-class hotel. In each room are two berths. The top berth is made after the manner of the sleeping cases in the Pullman palace cars, so that, if a passenger engages a state room for himself alone, it can be turned up, and its under part heing made of turned up, and its under part being made of handsome dark walnut, nicely carved, and well polished, it becomes an embellishment to the apartment. The berths are draped with crimson lambrequins and lace curtains. The floors of the rooms are covered with body Brussels carpet, the color and design of the fabric in no two apartments being alike. There is electric communication from alike. There is electric communication from each room to the steward's pantry, where there is a large annunciator. The state-rooms are 46 in number, providing accommodations for 100 cabin passengers. There are also accommodations for 100 steerage passengers. The saloon table service is of china and nickel silver, decorated with the name of the steemship in a garter on one side of and nickel silver, decorated with the name of the steamship in a garter, on one side of which is the American flag, and on the other the Brazilian flag. The bowls and pitchers in the state rooms are also of china, decorated in the same way.

The arrangements for increasing or lower-

The arrangements for increasing or lowering the temperature of the saloons are admirable. Pipes, which run along the floors on each side of the apartments, may either be filled with steam or cold air, according as the steamship is in a cool climate or in the tropics. These are prevented from disfiguring the apartments by being inclosed in bronzed iron lattice-work. The precautions for the prevention or extinguishment of fires are admirable. In the engine room is a heat register so delicately arranged that the slightest increase of temperature in any apartment with which it is connected affects it. Every room in the vessel is brought into communication with this, and it is said that whenever a lamp is lighted in one of them it records the increased heat resulting thereit records the increased heat resulting there-from. Two donkey engines are provided for use only in case of fire.

The Perfect Door Stop and Holder.

The door stop and holder, manufactured by Spengler & Co., East End, Pittsburgh, of which we give an illustration, is a valuable and useful invention. As will be seen from the cut, it consists of the ordinary door stop with a rubber or velvet tip, on the upper side of which a slot is sawed and a latch inserted, the attachment of the latch being such that it is always down ready to catch. To the door a catch is attached, and no mat-



will catch and hold and me wind can blow is At the same time it saves the plastered by the key or knob. ing of glass in vestibule doors, holds the door securely open for sweeping, ventilation or other purposes, and prevents that worst abomination, the slamming of doors. Messrs. Spengler & Co. are now offering them to the trade. These door stops are made in three styles, the prices of which will be found in trade report under the heading of "General Hardware."

The following are interesting facts concerning the Fall River mills, affected by the defalcations of Hathaway & Chase. The Border City Mills were incorporated in 1872, with a capital of \$1,000,000, all paid in, divided into 10,000 shares at \$100 each. The corporation manufactured wint details with divided into 10,000 shares at \$100 each. The corporation manufactured print cloths, running two mills, with 1881 looms and 76,208 spindles, employing about 050 hands, and producing 10,200 pieces weekly. Their financial statement a year ago showed assets of \$2,020,438 and habilities of \$1,603,133. The Sagamore Mill had a capital of \$250,000, and at the last report assets of \$720,492 and liabilities of \$672,402. A statement of the liabilities of \$673,610. A statement of the Union Mills Company shows a valuation of the mill property of \$988,120.29. The amount of regular notes outstanding against the corporation is \$433,603.53. The amount of irregular and void notes remaining unpaid is \$508,407,77; the whole amount of irregular notes issued was \$530,407,77. The total amount of regular and irregular, or fraudulent notes is \$0,42,991.36. The amount of bills payable, in addition to the notes, as far as known, will probably not exceed \$50,000

The New Bedford Copper Company have rolled a sheet of yellow metal 0x3½ feet surface and 5-16-inch thick, to furn the air cylinder of the new ferry-boat new building at Portland, Me., for the Boston, Revera Beach and Lynn Railroad.

#### **EXPORTS**

Quan. Value.
Mach'y, cs.... 12 \$904
Iron, pkgs.... 30 40
Sew. mach., cs 10 450 Danish West Indies. Quan. Value. Grindstones .. 8 \$50 Hdw., cs. . . . 32 343 Carriages... 21 C'ge mtls., pgs 278 Clocks, cs... 266 Hdw., cs... 1174 Pl'td ware. cs. 19 Hamburg. Ag. imp., pkgs 42 Clocks, cs.... 63 Mach'v. cs.... 36 1,794 768 2,654 Clocks, cs.... 63 Mach'y, cs.... 36 C'ge mtl., pgs. 7 Spelter, slabs.2017 Pl'd ware, cs. Cutlery, cs... Mf. Iron, pkgs Ag. imp., pkgs Pumps, pkgs... Arms, case... Saddiery, cs... Trucks... Pistols, case... Pumps, cs.... 5 Hdw., cs.... 64 Sew. mach, cs. 21 Belting, bales. 15 Copper, cks... 36

Argentine Republic. Antwerp. Rifles, cs..... Hdw., cs..... Ag. imp., pkgs Springs, cs... S'dpaper, case Rifles, case... Carbines, cs... Carriages.... Hdw., cs..... Revolvers, cs.. 3 Cartridges, cs 11 Powder, cs... 100 Ag, imp., pkgs 12 Bremen. imp., pkgs 43 iron, pkgs. 26 9,133 Cuba.

725 350 250 1,660 Cubs.
Sew. mach., cs 34
Nails, kega... 126
Mf. iron, pkgs 90
Cutlery, pkgs. 13
Tinware, cs... 2
Mach. oil, gls. soz.
Iron safe... 1
Hdw., cs... 180
Mach y, cs... 75
Grindstones 60
Iron h ppgs 30 Rotterdam. Pumps, pkgs. 11
Hdw., cs..... 86
Ag. imp., pkgs 95
Mach'y, bxs... 7
Clocks, bxs... 21
Mf. iron, pkgs 24 | National Hull. Hdw., Cs..... 183 4,708 Ag. imp., pkgs 157 4,845 Mf. iron, pkgs. 15 180 Mach'y, cs.... 7 4,400 Clocks, cs.... 5 100 Cr'ge mtl., pgs 11 546 Wheels, bdls.. 137 2,660

Hayti. London. Ag. inp..pkgs 42
Punps, pkgs. 11
Sew. mach. cs. 70
Mach'y, cs. 48
Hdw., cs. 68
Clocks, cs. 371
C'ge mtls., pgs 39
Nails, cs. 44 Lamps, pkgs.
Mach'y, pkgs.
Mf. iron, pkgs
Nails, kegs.
C'ge mtl. pkgs

Mexico. Liverpool. Liverpool.
C'ge mtlls, pgs 5
Ag, imp., pkgs 25
Ag, imp., pkgs 25
Wringers, pgs 24
Lamps, pkgs. 14
Pittols, cs. 11
Mach'y, cs. 10
Mf, iron, pkgs. 6
Hdw., cs. 12
Glocks, cs. 6
Burners, cs. 3
Iron, bdls. 22
Cutlery, cs. 8 Burners, pkgs 10 Hdw., pkgs... 171 Lamps, pkgs. 7 Nails, pkgs... 22 154 5,029 763 535 1,176 800 1,865 Pistols, cs.... Cutlery, pkgs, Grindstones 1,700 Cartridges, cs. 15 Cartridges, cs. 15 Tacks, pkgs. 2 Sew. mach., cs 22 Nails, kegs... 117 5,730 390 69 1,100 600 375

United States of Co-lombia. Idw., pkgs... 22
Saddlery, pgs. 9
Mf. iron, pgs. 23
Cutlery, bxs. 4
Tinware, cs. 6
Nails, kegs... 17
Pistols, case... 1 Ag. imp., pkgs 85 8,536

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Brasil.
Ag. imp., pgs. 161
Hdw., pkgs. 172
Mf. iron, pkgs 6
Irons, cs. ... 382
Sew. mach., cs. 13
Mach'y, pkgs. 3
Pumps, pkgs. 5
Clocks, cs. ... 54
Revolvers, cs. 1
Ptg. mtls, pgs. 23
Silverware, cs. 4 2,751 Tinware, cs... 31 203 Coal, tons.... 376 1,336 Hdw., cs.... 11 206 British West Indies. Peru.

Steel.

Alexandre F. & Sons, Bar steel, cs., 20 Brown Wm. Bundles, 102

Cases, 9 Sacks, 1 Howard F. A. Packages,

Order, Bundles, 382 Bars, 22 Cases, 16

Metals.

### IMPORTS Order, Sheet, bdls., 32 Flues, 200 Pig, tons, 160 Spiegel, tons, 300

Hardware. Ainswick, G.
Guns, cs., 3
Boker Hermann & Co.
Anvils, 90
Guns, cs., 2
Baldwin Bros.
Gun barrels, cs., 4
Burkinshaw W. C.
Packages, 4

Glasgow.

Havre.

Ag. imp., pkgs 6

Packages, 4 Cortis R. J. Chain & hdw., pkgs., Charles R. P. Package...
Prosser Thomas & Boos.
Prosser Thomas & Boos.
Bundles, 64
Richards C. B. & Bros.
Cases, 1
Wolffe R. H. & Co.
Wire, bdls., 306
Woodford W. O.
Bars, 58
Bundles, 160
Cases, 10 Carey Samuel,
Grindstones, 1000
Ely & Wray,
Cases, 1
Frasse P. A. & Co.
Mdse., pkgs., 1
Howell E. A.
Wire rope, coils, 2

Howell E. A.
Wire rope, coils, 2
Hildick A. H.
Chains, cks., 8
Shears, cks., 2
Keuffel & Esser,
Casks, 1
Lahanetch M.
Whetstones, cs., 1
Maii H.

Whetstones, cs., r
Mai H.
Cases, r
Mason J. W. & Co.
Wire rope, coils, r
McCoy & Co.
Cases, r
Moore's J. P. Sons,
Guns, cs., 4
Gun caps, cs., 2
Arns, cs., 7
Phelys. Dodge & Co.
Ladles, cks., r
Bothschild, L.
Cases, 2
Schoverling & Daly,
Guns, cs., r

Guns, cs., 1 Mdse., pkgs., 2 Schuyler, Hartley Graham, Guns, cs., 6 Sellers W. B., Jr

Squires H. P. Guns, cs., r Tillottson L. G. & Co. Wire, lots., 47 Wiebusch & Hilger Hdw.

Co. Hardware and Cut-lery, pkgs., 11 Witte John G. & Bro. Cutlery, cs., 2 Order, Files, cks., 1 Anvils, 89

Cases, 16

Metals.

Ackerman J. H.

Antimony, cks., 18

Alexander F. & Son,

Lead pipe, bdls., 84

Bruce & Cook,

Terne pl'18, bxs., 250

Tin plates bxs., 145

Byrne Joseph & Co.

Tin plates, bxs., 498

Cort N. L. & Co.

Tin plates, bxs., 498

Cort N. L. & Co.

Tin plates, bxs., 498

Cort N. L. & Co.

Tin plates, bxs., 3446

Harton Benj.

Lead, bars, 1316

Hendricks Bros.

Antimony, cks., 17

Lamarche H.

Rolled zinc, cks., 60

Meyer Moritz,

Lead, bars, 2601

McGoy & Co.

Nickel, cs., 2

Naylor & Co.

Tin plates, bxs., 3321

Pratt C. & Co.

Tin plates, bxs., 333

Phelps. Dodge & Co.

Tin plates, bxs., 398

Antimony, cks., 39

Bl'k t'g'rs, bxs., 27

Simon Bache & Co.

Tin, s., 10

Order,

Tin, ingots, 600 Tin, cs., 10
Order,
Tin, ingots, 600
Tin plates, bxs., 4265
Antimony, cks., 50
Without Bill of Lading,
Antimony, cks., 10 Iron. Whitney A. R. Flues. 177

#### FOREIGN.

FRANCE.

Bright Manufactured the control of the current of the control of t ( Kenus Universalle)

#### GERMANY.

(\*\*PENANY.\*\*
(\*\*POSNAJELE\*\*, \*\*
(\*\*POSNAJELE\*\*, \*\*

\*\*HAMBURG\*\*, April 13. 1878.—\*\*

\*\*Metals\*\*, —\*\*Metals\*\*, —\*\*The many uncertainties which still keep the general political horizon clouded are a decided impediment to a genuine revival in business, and both dealers and consumers remain in an expectant attitude, limiting their purchases to urgent requirements. Speculation is still dormant, notwithstanding the extreme ease in money matters. The spring trade at this advanced season again proves to be a disappointment. Copper continues to suffer from general causes, just enumerated, and special ones connected with its abundance at the leading centers. Berlin is quiet and quotes as follows: Good qualities English and Australian, 72 @ 75 marks the 50 kilos., and Mansfield, 77 @ 77.50. We are duil here, and quote Droutheim, 78 @ 79 marks; American, 85; English, 74 @ 75; English Sheathing, 53 @ 56. Stettin remains quiescent; they quote the various sorts, 77.50. This.—\*\*Business in this metal is of a restricted nature. Berlin quotes: Banca, 73 @ 73.50 marks the 50 kilos, and English, 69 @ 69.50. We are dull in this market, and quote: Banca, 74 @ 75 marks, and English, 74 @ 75. Lead is still tending downward. Berlin is weak, and quotes: Tarnowiz, Hartz and Saxonlan, 18 @ 18.50 marks the 50 kilos, while here we still maintain the following quotations: English 79, 27 @ 21.50; ditto Sheet, 21.50 @ 22; German Pig, 20 @ 20.50; Spanish, 22.50 @ 23; English White Lead, 31.25 @ 34.50. Stettin unaltered. Spelter is sustained by reduced stocks. Berlin quotes good qualities Silesian, 19.50 @ 20 marks the 50 kilos. Breslau quotes as follows: Silesian, to arrive, 19.50; ditto Sheet, 21.50; ditto Vieille Montagne, 25 @ 21.70; ditto for Sheathing of vessels, 26.50; Zinc White, 26 @ 35; Light Gray ditto, 25.50, and Dark ditto, 25.50.

#### HOLLAND.

(Koch & Vlierboom.) (Roch & Vilerboom.)

ROTTERDAM. April 16, 1878.—Tin.—The market has been slightly looking up, there being some increase in the demand. Hanca Tin to be delivered from the late sale, after selling at 40 guidlers the 50 kilos., has improved to 40.25, and Billiton, after bringing 38 and 38.12½, has suddenly risen to 38.37½. Lead.—Of the F. C. B. brand 200 Pigs sold at 10 guidlers the 50 kilos. Stolberg may be had at 10.25.

#### Special Notices.

# Price Book

for General Hardware.
Half leather, \$10; full leather, \$12. Send for descriptive circular.
In use in nearly every State in the Union, and growing in favor every day.
BUELL LAMBERSON, 97 Chambers St., N. Y.

WANTED,—A SITUATION IN SOME HARD-ware establishment, by a young man who has been for several years connected with that trade in the West Indies. He is willing to make himself generally useful, and can furnish the best of references. Address BAILEY, BOX 52. New York Post Office.

#### Special Notices.

JENNINGS'S

#### COMBINATION DISCOUNT TABLES.

This Book contains 1500 tables for single and combination discounts, such as 17% %, 45%, 10&7% %, 15&5%, 25&10 %, 33½ &5&2%, 35&7½ &2%, 45&5&10 %, 60&10&5&10.5 %, 65&10&10.5 %, 75&15 %, &0...

OPINIONS.

OPINIONS.

SHEFFIELD, ENGLAND, March 22, 1878.

We have tested your book and find it the most simple and perfect work possible. It will be most invaluable to us in getting at NET coers, strying Insotens, &c., and we think that every business house in the States and every house here that is at all engaged in the American trade should have a copy. We are glad to bear such testimony to its great value,

WM. MARPLES & SONS.

Mr. S. H. Jennings. Dear Siz: -Enclosed please find \$3.00, for which send us by mail one copy of "Jennings's Combination Discount Tables," as noticed in The Iron Age of this week. Trusting it is what we have wanted many, many times, we are You're respectfully.

ELSWORTH & DUDLEY.

Mr. S. H. Jennings. Dear Sir: "Your "Discount Tables" came safely to hand, and the writer has tested it pretty thoroughly and cery satisfactorily. Particularly do we find it useful in getting cost on goods for MARKING them. Trusting you may find many who will express the same opinion, we are Yours respectfully.

It will be mailed, postpaid, to any address, on receipt of the price, \$3. Currency may be sent by mauli at my risk. Address

S. H. JENNINGS.

#### S. H. JENNINGS.

Deep River, Conn., U. S. A.,

Offers his services to parties in any FOREMEN COUNTRY except Great Britain, who may desire to establish, build up, or increase a trade in American Hardware, Agricultural Implements, Machinery, and Miscellaneous Goods, as EXPORT FACTOR,

at a low rate of commission. Correspondence solicited. He has had three years' experience as Purchasing Agent for

Messrs. WM. MARPLES & SONS, Sheffield and London, England Sheffield and London, England, Jobbers doing business throughout Great Britain, and to whom he would with pleasure refer. By arrangement with them he will represent no other firm having a house or branch house in Great Britain, which includes England, Ireland, Scotland and Wales. He buys direct from manufacturers, and only for export, thus securing lowest possible prices. He will attend to all matters this side of the water, including Purchases, Shipments, Remittances, &c., and has facilities in New York City for securing prompt shipments at most favorable rates of freight. Manufacturers of goods suitable for Foreign Trade are invited to send in their circulars or catalogues, and quote "hard pan" prices for export, which will be considered confidential.

#### VALUABLE CAR WORKS AT AS-SIGNEES' SALE.

The Middletown Car Works, at Middletown, Pa., will be sold to the highest bidder at public sale, upon the premises, at Middletown, Ph., on the 2d day of May, 1978, at 2 o'clock. This valuable property is erected upon leasehold estate for og years, immediately adjoining the Pennsylvania Railroad Company, with whose tracks it is connected by sidings, and the improvements consist of a two story brick, slate roof, machine shop, to by 122 feet, with commoditus building shop, blacksmith shop and repair shop, with all the necessary outbuildings for an establishment of the charactery outbuildings for an establishment of the consistency of t

#### To Manufacturers and Johbers of Hardware, Cutlery, &c.

Manufacturers and Jobbers, having surplus stocks or goods that from any cause are unsaleable upon which they wish to realize, or assignees who have stocks to dispose of, will find a cash purchaser by communicating with.

W. M. CALDWELL,

Cutlery, &c., 102 Chambers St., New York.

#### DROP FORGINGS.

The TRENTON VISE & TOOL WORKS, Trenton, N. J., having increased their facilities, are now able to do all kinds of

Iron and Steel Drop Forgings in quantities to order at reasonable rates. HERMANN BOKER & CO., Proprietors, 101 & 103 Dunne St., N. Y.

# Notice of Removal.

29 CHAMBERS ST., NEW YORE, Jan. 1, 1878.
I beg to advise that I have removed from Nos.
10 t and 10.3 Duane street to No. 29 Chambers street,
where samples can be inspected and communications addressed.
Yours respectfully,

ASLINE WARD,

Agent for Geo. Wostenholm & Son, "Limited," Washington Works, Sheffield, and Fred's Ward & Co., 37 George St., Sheffield. P. O. Box No. 1631, New York.

#### REMOVAL.

NEW YORK, May 1st, 1878. JENNINGS BROS., Manufacturers of the

#### Japanese Paper Ware, WILL OCCUPY

51 Murray Street, with a full line of Samples, including their improved STANDARD CALL, with Patent Bottom and Metallic Binding.
Reduced Price Lists now ready. Trade supplied.

#### Special Notices.

# "SHERMAN" PATENTS,

Is now ready to Issue Licenses to use the said Process under a Royalty.

The Process is used to great profit in the Puddling Furnace, Martin-Siemens Furnace, Bessemer Converter, Crucible, and for Gray Iron Castings.

The use of the Process does not involve any changes in the furnaces or in the present manner of working them, nor does it increase the labor, but on the contrary saves material, fuel, labor and time.

The chemicals used are not expensive, their cost not exceeding 25 cents per ton of product, and the charge for royalty is placed at a low price so as to bring the Process into general use.

By the use of this Process a large percentage of the cheaper grades of irons and steels can be made into a good merchantable product.

Irons which have been found impossible to use either alone or in mixture with other irons are now being profitably used by means of this Process. It improves the working of both poor and good irons or steels, a better product being obtained by its use than is possible without it. It makes the molten metal more fluid and the product more sound, homogeneous and ductile.

It makes less skull and scrap and less waste in the finished product.

It greatly improves sulphurous and phospi irons and steels, making them less red and short, and produces a more even product.

For castings that are to be tapped and have threads cut upon them, it allows a close, strong iron to be used, leaving it soft for the tool to readily cut.

By the use of this Process in the Bessemer or Martin-Siemens furnace, good steel rails can be made from a mixture of from 30 to 60 of old iron rails and the balance good stock. Thousands of tons of steel rails made by this Process, as above are now being used in France.

The Process will be demonstrated without ex-ense, at the works of parties applying, and the mount of royalty to be charged for its use will be urnished upon application to

The Sherman Process Co., No. 9 Pemberton Square.

BOSTON, MAAS. See page 17 of The Iron Age, of Oct. 25, 877.

#### SPECIAL NOTICE.

The undersigned offer their services as agents to American Producers of Metals. They represent foreign brands of Zinc, Russia Iron, Hoop Iron, Window Glass, Cutlery and Guns. LOUIS WINDMULLER & ROELKER.

#### Wanted—A Partner,

20 Reade Street, N. Y.

In a foundry and machine business, already well es tablished. Locality splendid and healthy. A practical man with means is wanted to join practical man who is already well established. CAR WHEEL FOUNDRY. P. O. Box 134, Selma, Alabo

MANUFACTURERS OF HARD. WARE SPECIALTIES.

To Let, to make on Royalty, a Hardware Article
(patented) of assured Sale and Profit.
This is addressed only to parties having ample
resources, knowledge and prestige in the trade.
For full particulars address
S. R. BARTLETT,
Concord, Mass.

Just Issued.

#### IRON MAKING AND COAL MINING IN PENNSYLVANIA.

By JAMES M. SWANK, Secretary American Iron and Steel Association

sylvania Board of Centennial Managers, is an important contribution to the historical literature of mining and metallurgy in America. mining and metallurgy in America. It traces the origin and development of iron making and coal Job and Auction Lets of Hardware,

Cutlery, &c..

W. M. CALDWELL,

mining in this country, and contains a large
amount of historical data, compiled chiefly from
original sources, and verified by the most careful

Price, bound in Cloth, \$2.00.

Orders should be sent to the author, at the office of the American Iron and Steel Association, No. 265 South Fourth Street, Philadelphia, Pa.

#### For Sale.

Large Punch and Shears, N. Y. Steam Engine Co. make ; two small Punches ; 16x41/2 feet Planer ; number of Drills and a lot of tools suitable for architectural ironwork; Steam Engines and Boil-JOHN CABROLL, ers of all sizes at 266.068 & 270 Front St., N. Y

#### For Sale, To Let or Exchange

For other Property (Western preferred), Stock or Interest in an estab-

lished Business,

On very reasonable terms, one of the finest pieces of property in the country for Foundry or general Manufacturing purposes, and consists of the following substantial brick buildings, situated corner Vail Ave. and North St., Troy, N. Y., viz., Moulding room, 132Xy4 ft., with large three-story building attached, 174Xy2 ft. The distance between floors and ceilings on each story is respectively 14, 12 and 10 ft., and are now used as mounting, store, sample and office rooms. Attached also is a two-story building, 90X45 ft., with engine and boiler rooms. On same grounds are sheds, barns and large yard. Attached to the property also are engine and boiler main lines of shafting, elevators, &c. The property fronts on three streets. It will be sold, rented or exchanged, in part or together, and at very low price. Address

\*\*A. G. PATTON, Columbus, O.\*\*

Or W. H. HOLLISTER, JR., Troy, N. Y.

#### Special Notices.

# The Sherman Process Company, W. CARNER, General Merchant,

Mouldsworth, near Chester, England,

Supplies nearly every class of Goods, including all kinds of

Agricultural Machinery, Domestic Machines.

#### SEWING MACHINES

And Artificial Manures.

W. Garner is open to represent any Foreign Manufacturers in England for the sale of their manufactures of whatever nature or kind. Hav-ing a wide and well established connection in the Provinces, could introduce some American, German and French products to mutual advantage. W. GARNER is also open to buy any kind of Goods on commission, and ship them to any part of the world. Manufacturers or others desiring his as-

#### sistance will please address (with full particulars AUSTRALIA.

in English) as above.

AMERICAN HARDWARE CO., No. 9 WILLIAM STREET, MELBOURNE

AUSTRALIA, Solicit correspondence with American manufac-curers desirous of representation in the Australian Colonies. Consignments will have prompt atten-ion. References furnished.

#### LEHIGH UNIVERSITY Tuition Free.

Tuition Free.

Civil, Mechanical and Minno Engineering; Chemistry and Metallurgy; Full Classical Instruction; French and German; English Literature; international and Constitutional Law; Psychology and Christian Evidences. For Registers address
The REV. JOHN M. LEAVITT, D. D., President, Bethlehem, Penn.

# The Bullard Machine

Co., "Limited."

have retired from business. Settlement of all accounts will be made by H. A. V. POST, Treasurer, 23 Nassau Street, who is authorized to sign "in liquidation." Our patrons are referred to the following notice.

BULLARD MACHINE CO., Limited.

I will continue the business in Machinists' Tools, Wood-working Machinery and Steam Engines, both new and second-hand, at the old stand of the late Bullard Machine Co., Limited, No. 14 Dey St. E. P. BULLARD.

TO HARDWARE MANUFACTURERS,—A MIDdle-aged man who is acquainted with jobbers in this and other cities, would like to arrange with manufacturers to introduce specialites. Has been a hardware salesman 15 years, either on salary or commission. Best of references. Address A. G.,
Office of The Iron Age, 83 Reade St., New York.

#### Rolling Mill For Rent.

Near Railroad and Canal and leading markets. Capacity, 10 tons per day.

ROLLING MILL. Address Office of The Iron Age, 83 Reade St., New York

Second-Hand Tools and Engines.

One Mason Milling Machine, heavy; four Brainerd Milling Machines; one extra heavy Milling Machine; one a-spindle Drill, Pratt & Whitney Co.; one a-spindle Drill, Pratt & Whitney Co.; one fapping Machine, Pratt & Whitney Co.; one Tapping Machine, Pratt & Whitney Co.; one fin. 3 feet Planer, Pratt & Whitney Co.; one 8 in. Gould Shaper; one 8 in. N. Y. Steam Engine Co. Shaper; one 24 in.x17 ft. Shafting Lathe; one 24 in.x16 ft. Shafting Lathe; one 24 in.x16 ft.

E. P. BULLARD, Successor to BULLARD MACHINE CO., Limited

14 Dey St., New York. AUCTION NOTICE FOR 1878.

#### Bissell & Welles.

WHOLESALE AUCTIONEERS AND COMMIS-SION MERCHANTS,

No. 15 Murray Street, New York,

Would solicit from manufacturers and importers consignments of Hardware, Cutlery and House Furnishing Goods for their Spring Auction Sales, and are prepared to extend every facility for the disposing of surplus stocks for immediate cash. Having had long experience and a thorough knowledge of all classes of hardware, and our acquaintance being extensive, our sales are largely attended by city and country buyers, making them unusually successful. We refer to the entire hardware trade of New York.

WANTED.—A thoroughly competent business man, with \$20,000 to \$20,000 capital, to take an active managing interest in a large and profitable manufacturing concern. There is sufficient capital in the business at present, and, therefore, money not so much an object as to get a responsible party with large experience in the iron trade and first-class business ability interested. To such a man this is a rare opportunity of investing his money and services profitably. opportunity of invesses, with references, for particu-profitably.

"MANUFACTURER."

TORONTO, CANADA.

WANTED.—A first-class business man famil-ble of handling large bodies of mon, desires a respon-sible position. References satisfactory. Address,

IRON AND STEEL, Care of P. O. Box 813, Bridgeport, Conn.

#### Salesman Wanted,

by a Paint Manufacturing House, for City and Country Trade. State age, experience, references and compensation expected. No objection to those who have had only a Hardware or Drug

experience. Address
Z. H. M. & CO., Box No. 6, Office of The Iron Age, 83 Reade St., New York.

#### Wanted,

Agencies in General Hardware, for traveling in the Dominion of Canada. Best references when required. Address Post Office, Montreal.

# Trade Report.

Office of The Iron Age, Wednesday Evening, May 1, 1878. The public debt statement for May, received by telegraph from Washington this

morning, makes the following	
	0
Bonds at 6 per cent	\$738,619,000.00 703,266,650.00 210,000,000.00
Total principal	**************************************
DEBT BEARING INTEREST IN	LAWFUL MONEY.
Navy Pension Fund at 3 per cent Interest	
DEST ON WHICH INTEREST HAS TURITY.	CEASED SINCE MA-
PrincipalInterest	360,802.92
DEST BEARING NO IN	
Old demand and legal-tender no Certificate of deposit Fractional currency Coin and silver certificates	28,315,000.00
Total principal unclaimed interest	\$446,908,273.02 7,267.03
TOTAL DEBT.	
Principal	
Total	\$2,232,223,026.28
CASH IN THE TREAS	URY.
Coin	5.88 \$138,357,608.14
tional currency 10,000,000 Special deposit held for the redemption of certificates of deposit, as provided	30,000,000.00
by law 28,315,000	.00 25,215,000.00
Total \$195,515,377	.56 \$174,324,459.49

..... \$2,039,723,514.31 ..... 2,036,707,648.72 Decrease of debt during the month Decrease of debt since June 30, 1877 COMPANIES, IN-Principal outstanding.
Interest accrued and not yet paid.
Interest paid by United States.
Interest repaid by transportation of mails, &c...
Balance of interest paid by United \$64,623,512.0 1,292,470,20 37,896,334.50 0,162,852.34 28,733,482.16 The local financial market is without feature of great general interest. Money is easy and abundant, at 4 @ 5 % on call. On

prime business paper the rate is 41/2 @ 6 %. In the gold market the premium has again declined to 1003%. The following shows the extreme daily fluctuations:

ozerome demy macedia	TORONIO I	
	Highest.	Lowes
Thursday	1001/2	100
Friday	1001/2	1003
Saturday		1003
Monday		1003
Tuesday	1003/6	1003
Wednesday	10036	roo3

Government bonds during the week have been firm. Yesterday the Secretary of the Treasury issued the 56th call for the redemption of 5-20 bonds consols of 1865. The call is for \$5,000,000. The principal and interest will be paid at the Treasury on and after the 30th day of July next, and the interest will close on that day. The following are the descriptions of the bonds:

Coupon bonds dated July 1, 1865, namely \$50, Nos. 50,001 to 53,000, both inclusive \$100, Nos. 85,001 to 90,000, both inclusive; \$500, Nos. 60,001 to 63,000, both inclusive; \$1000, Nos. 108,001 to 114,400, both inclusive. Total coupons, \$3,000,000.

Registered bonds, redeemable at the pleasure of the United States, after the 1st day of July, 1870, as follows: \$50, Nos. 1751 to 1900, both inclusive; \$100, Nos. 14,101 to 15,200, both inclusive; \$500, Nos. 8701 to 9200, both inclusive; \$1000, Nos. 28,751 to 8300, both inclusive; \$10,000, Nos. 14,851 to 15,507, both inclusive. Total registered, \$2,000,000; aggregate, \$5,000,000.

In the stock market there has been a delators. The entire list was heavy, and a decline continued until a "bull" movement was organized, which changed the course of prices and forced an advance. The princial dealings were in Lake Shore, Western quence, complain that times are dull. Union, St. Paul, D. L. and W., Northwest and the coal stocks.

The weekly statement of the New York banks shows a reduction of \$603,000 in the total reserve and \$308,400 in the surplus reserve, the latter now amounting to \$17,300,-150. The legal tender note average is now up to nearly \$35,000,000, while the specie average is about \$32,500,000. The following is a comparison of the bank averages for the

The following is a comparative statement merchandise for the nine months ending March 31, 1878, compared with the corresponding periods of 1877, specie values : 878. Exports-Domestic

	Foreign	10,449,207
1877.	Imports. Excess of exports over imp Exports—Domestic. Foreign.	460,301,256
Th	Total  Excess of exports over imple foreign trade movement thown in the following tab	s for the week

For week ended April 27:

Total for week. \$5,092,609 \$7,244,064 Prev. reported. 106,633,078 103,028,044 Since Jan. 1....\$111,725,687 \$110,272,108 \$96,984,963 Ironware.

Included in the imports of general mer-chandise were articles valued as follows:

	Quantity.	Value
Anvils	6	74
Brass goods	24	1,062
Copper		18,940
Cutlery	70	31,197
Guns		3,492
Hardware		8,051
Iron, pig, tons	250	5,222
Iron, sheet, tons	4	395
Iron ore, tons	201	200
Iron, other, tons	540	14,527
Metal goods	82	11,730
Naus	300	3+355
Needles		8,46
Nickel		8, 33
Old Metal		2,65
Platina	5	25.437
Per. caps	I	12
Steel	356	- 9-53
Silverware	3	90
Tin, bxs	15,275	67.8x
Tin, 1,552 slabs	57.754	8,504
Wire	40	3,600
EXPORTS, EXCLUSIVE OF	SPROIE.	
For week ended April 30 :		
х876. х	877.	1878.
For the week \$2, 160, 280 \$4.	sox.867 #	5.045.400

en .6a .9a		107,557,450
	\$86,366,095 BPBCTE.	\$113,502,955
ded April	27:	
ed	**** *******	. \$1,578,311 . 5,490,921
7		4,853,631 . 16,053,347 24,863,212 10,812,282 17,695,837
	led April	kvonts of specie. led April 27 : k ted 1878. 5. 5. 5. bonds at the close w.

as follows:	
Bid.	As
U. S. Currency 6's1191/8	3
U. S. 6's 1881 registered	3
U. S. 6's 1881 coupon107%	1
U. S. 6's 1865 new reg 10334	1
U. S. 6's 1865 cou10334	3
U. S. 6's 1867 reg	1
U. S. 6's 1867 cou	3
U. S. 6's 1868 reg1091/8	
U. S. 6's 1868 cou1091/8	
U. S. 10-4e reg	1
U. S. 10-40 coupon	2
U. S. 5's 1881 registered10412	3
U. S. 5's 1881 coupon	7
U. S. 4½'s 1891 registered103	1
U. S. 41/2 '8 1891 coupon	,
U. S. 4's 1907 registered 10038	1
U. S. 4's 1907 coupon100%	2

The following were the closing quotations of active shares :

5		Bid.	1
	Atlantic and Pacific Telegraph		-
4	Chicago and Northwest	5236	
•	" Pref	7 3 36	
5	Chicago, Rock Island and Pacific		
	Chicago, Bur. and Quincy		
	Col., Chic. and Ind. Central	336	
š	Col., Chic. and Ind. Central	374	
	Cleveland and Pittsburgh	7536	
1	Chicago and Alton	7136	
	" Pref	9936	
	Consolidation Coal	25	
1	Canton	XE	
3	Delaware, Lack, and Western	5236	
	Delaware and Hudson Canal	53%	
1	Express—Adams	102	
.	44 American		
1	" United States		
í	" Wells, Fargo & Co	89	
í	Erie	1236	
í	" Pref	283/4	
í	Harlem	1471/2	
6	Hannibal and St. Joseph		
	rrei		
9	Illinois Central		
3	Kansas Pacific	834	
	Kansas and Texas		
-	Lake Shore	6238	
3	Michigan Central	6834	
l	Morris and Essex		
	Milwaukee and St. Paul Pref	49%	
l	Mariposa	73/9	
	" Pref		
	New York Central	198	
5	New Jersey Central		
	New Jersey Southern.	13/6	
	Ohio and Mississippi	836	
	Pref	X536	
	Pacific Mail	211/8	
,	Panama		
9	Pittsburgh and Fort Wayne	. 90	
	Outoballman	-67/	

#### GENERAL HARDWARE.

Wabash and Western

a Union Telegraph...

34 7% 4½ 20½ 18 69% 80%

The improvement in general business 30,100, both inclusive; \$5000, Nos. 8051 to noticed last week has continued during the week under review, and jobbing houses and others that cater to the requirements of the retail trade are fairly employed, and as a rule speak very hopefully about cided lack of interest on the part of specuin foreign Hardware and manufacturers whose chief business is with the wholesale trade of the country, find themselves between seasons, and, as a natural conse-

The Paris Exposition was formally opened by President MacMahon this afternoon. Owing to the unfortunate series of delays which took place in the shipping by the Commission of the goods of American Exhibitors, a great deal of disappoint-ment has been occasioned, and many exhibits of much interest are not yet in place. We received this afternoon from Mr. Williams a cablegram stating that the of invoice following exhibits of American Hardware were ready and complete at the opening to-day: Russell & Erwin Manufacturing Co., New Britain and New York. Locks, Knobs, Bronze Hardware and kindred goods; Mallory, Wheeler & Co., New The following is a comparative statement Haven, Conn., Locks and Knobs; A. of the United States' imports and exports of Field & Sons, Taunton, Mass., Tacks, Shoe Nails, &c.; Stanley Rule & Level Co., New Britain and New York, Rules, Planes, Plumbs and Levels, &c.; J. J. Tower, New York, Pad Locks, &c.; Rathbone, Sard & Co., Albany, N. Y., Stoves and Ranges; Abendroth Brothers, New York, Stoves and Plumbers' Iron Ware; McCaffrey & Brother, Philadelphia, Files, Rasps, &c.; Yale Lock the following list, which is subject to 10 per Mfg. Company, Stamford, Conn., Post Office Locks and Furniture, Cabinet Locks, &c. ; publish a descriptive article with illustra-Welsh & Lea, Coleman Eagle Bolt Works, Philadelphia, Carriage and Tire Bolts, &c.; Robert Taylor & Co., Philadelphia, Black PRICE LIST OF THE PERFECT DOOR STOP AND HOLDER. Lead Crucibles; W. T. & J. Mersereau, Newark, N. J., and New York, Stair Rods, Step Plates, Dog Collars, &c.; Morris, Wheeler & Co., Philadelphia, Nails; St. Louis Stamping Co., St. Louis, Mo., Granite & Beach's Double Cut Gimlet Bits and which are subject to a uniform discount of

President Hayes showed his interest in Double Cut Extra, discount 40 and 10 pe the manufacturing industries of the country by devoting considerable of his time while and German pattern Gimlet Bits, \$10 pe in Philadelphia last week among the large establishments of that city. He made quite a visit to the Keystone Saw Works, where the party were entertained with an excellent Mr. Hamilton Disston escorted the President through the works, and entertained him with an interesting exhibition of a Saw passing through all the stages of its manufacture, from the molten steel to the finished article. The Saw, when finished, was presented to his Excellency as a memento of his visit to the largest Saw works in the world.

The demand for Nails continues fair, and the asking price is still \$2.50, net, for rod., but buyers of 50 kegs and over would have no difficulty in shading this figure.

The Russell & Erwin Manufacturing Company present in their advertisement on the 10th page the standard list prices of Iron and Brass Wood Screws, to which is added ral Wrenches, 12 inch, which have been the list prices of Silver Plated Screws on Iron, Silver Plated or Bronze Screws on Brass, and Nickel Plated Screws.

The Bridgewater Iron Company have placed on the market a new line of Pointed and Polished Horse Nails, which will be known in the trade as the "Bridgewater Iron Company's Horse Nails." The following is the list price for these goods:

Nos..... Per lb... ..... 5 6 7 8 9 10 ..... 56 23 9 21 9 20 9 19 9 18 9 These Nails are for sale by the Parker Mills, N. Stetson, Jr., agent, No. 73 Pearl street. Sargent & Co. have just issued the following price list for the Goodell Company's Paring, Coring and Slicing Machines, for which they are sole agents. The list is subject to discount 10 per cent, for prompt

parings.
The New "Lightning" Apple Parer, with
Push-Off ... 6.75
Its rapidity is unequaled. Parings are dropped
clear of the machine. The push-off arrangement

The Bemis & Call Hardware and Tool Co.

have issued the following circular, under

date of 1st inst., showing additional discounts on many of their specialties: SPRINGFIELD, MASS., May 1, 1878. Gentlemen: We take pleasure in advising you that by increased facilities and decreased expenses, we are now enabled to produce some lines of our goods at a considerable reduction in the cost of same, and thereby give to the trade accordingly lower prices on some articles of our manufacture.

some articles of our manufacture. on and after this date we shall make to the trade an additional discount, aside from our last previous quotations, as follows, on the following named goods: 90¾ 17¼

										3373 7
Compass	es and Cs	dipe	ere	١			 	 		
										105
6.6	New Pat	terr	1 L	e	ve	r.		 		
6.0	66									30 5
6.6	Old Patt	ern								3.,
4.6	Plate								1	Discounts
4.6	Cross Cu	t					 		1	
Screw D	rivers						 	 	1	remain
	ners								}	
Segar Bo	x Knives						 	 	1	8.6
	nches								1	
										heretofore.
Belt Awl					0		 		J	
										30 5
										20 5
Spring as	nd Check	Pur	ch	le	3.			 		20 5
Inher S	cribes									20.5

Pocket Squares.... 6-inch Steel Marking Gauges Steel Bevels..... Scratch Awls. "Merrick's Pattern".
"Briggs' Pattern".
Cylinder or Gas Pipe Combination (Discou heretofore.) Each article of our manufacture will be stamped "Bemis & Call Co."

Terms—Net Cash; payable in Boston or New York funds, we reserving the right to draw at sight, with exchange, for all bills not paid at maturity. A discount of 2 per cent. allowed for Cash, if received within 30 days from date of invoice, and not otherwise. Also, an extra discount of 1 per cent. wise. Also, an extra discount of I per cent. for Cash received within 10 days from date

In making the foregoing named reduction, we wish to assure our patrons that we shall not recede in any way from making our goods of the same high standard of quality workmanship and finish, as heretofore; and we shall sustain the reputation which has always been conceded to us, of producing the best goods in the market. The goods them-selves shall be their own recommendation

in the future as in the past.

With many thanks for past patronage, we respectfully solicit and hope to deserve a continuance of the same.

Most respectfully, Yours, BEMIS & CALL HARDWARE AND TOOL CO. Spengler & Co., Pittsburgh, Pa., quote their "Perfect Door Stop and Holder" at cent. discount to the trade. On page 18 we tion of this Door Stcp, to which we invite attention:

Coppered . . . . Tinned . . . . . . Nickel Plated . .....per gross \$9.00

Fernald & Sise, No. 100 Chambers street, German pattern Gimlet Bits. They quote 60 per cent. The lists are as follows:

cent; D. C. No. 1, discount 60 per cent.

Henry Disston & Sons have reduced the price of the Excelsior Wrench and Screw Driver from discount 45 per cent. to dis count 60 per cent. The new price went into effect to day.

The attention of the trade is invited to the advertisement of Stewart & Mattson, of Philadelphia, on page 32. In addition to the line of Locks, Door Knobs, &c., of their manufacture, they offer to the trade as agents some important specialties, among which are Bushnell & Co.'s machine-made square-pointed Wrought Staples, which, we are informed, are meeting with a large sale and giving general satisfaction.

The Girard Wrench Co., of Girard, Pa. have issued the following price list for their goods. The only change we notice over their former list is in the price of Agricultuchanged from \$5.60 to \$4.80 per dozen, net. The regular trade discount from the list of Polished and Black Wrenches is 50 and 10

Polished Hardware, 8 inch \$12 to " 24 to 15 to 16 to 16 to 17 to 18 to 1	00 X0 *6 IS 00 X2 *6 X6 00 X5 *6 26 00 X8 *6 30	0,00 0,00 0,00 0,00 0,00
Agricultural.	Agricultural.	. 80
Y	s Contain.	
	12 15 18	21
Doz 6 6	0 3 2	

terials, and all warranted Wrought Iron Bar, Head and Screw. Parties ordering will please be particular and specify whether Hardware or Agricultural Wrenches are wanted.

The old house of Walsh, Coulter & Co. No. 87 Chambers and 69 Reade streets, has been succeeded by the firm of Coulter Flagler & Co., which is composed of the fol lowing gentlemen: Samuel Coulter, A. Flag ler, James Forsyth. In their advertisement on page 18 will be found a list of the manufacturers they represent.

The Stanley Rule and Level Company

have removed their warerooms in this city, formerly at No. 35 Chambers street, to No 29 Chambers street, and now occupy the spacious loft over the Hardware store of Messrs. Wm. Bryce & Co.

The Cowles Hardware Co., Unionville, Conn., are represented in this city by Coulter, Flagler & Co., No. 87 Chambers street, and in Baltimore by their agents, Samuel G. B. Cook & Co.

The Ausable Horse Nail Company's warehouse in this city has been removed from their old stand No. 35 Chambers street to No. 4 Warren street, near Broadway.

James C. Holden & Son, successors to Holden, Hopkins & Stokes, have issued a circular under date of 1st inst., from which we extract the following:

We beg to inform you that we have re-moved our office from the Coal and Iron Exchange, No. 21 Cortlandt street, to No. 218 Fulton, corner Greenwich street, and will continue to give our attention to the sales of all descriptions of manufactured Iron, Pig Iron, Rails, Old Rails, Railroad Spikes, Fish Plates, Beams, Cut Nails, &c. We also ask from our friends and customers a continuance of their orders for Iron, Steel, Nails, &c., which we feel confident we can furnish at the lowest market rates.

M. H. Tarbox & Co., proprietors of the Penfield Block Works, have issued under date of 27th ult., the following circular. H. B. Newhall, No. 11 Warren street, is their agent in this city:

LOCKPORT, NIAGARA COUNTY, N. Y., {
April 27th, 1878.
To the Trade: Below please find revised rice list of our Common Sense Hoisting Blocks Nos. 440 and 441.

Size Shv's.6x1¼ 8x1½ 10x1½ 11x1½ 15x1¾ 15 D'm. R'pe,½ to 1 1to 1½ 1 to 1½ 1 to 1½ 1 to 1½ in. Price, each.\$7.50 9.00 11.50 14.00 16.00 Discounts same as before.

We realize the present is not a favorable time to advance prices, and we have tried hard to avoid this, but experience has taught is that our first estimates of cost were too low, and since then we have made changes that have increased the cost. A careful comparison with other styles of Hoisting Blocks will show that in the larger sizes especially, our prices are low. We look especially, our prices are low. We look upon the roller-bearing principle as a pronounced success, and shall be glad of an opportunity to convince anyone who may ques Yours truly

M. H. TARBOX & Co. We have received from F. Haberman, No. 294 Pearl street, the following circular which explains itself :

NEW YORK, April 30, 1878. New York, April 20, 1878.

GENTS: We take great pleasure in introducing to you Mr. F. Haberman, who has bought of us our entire stock of tools, machinery, &c., formerly used at our factory, corner York and Adams street, Brooklyu, for the manufacture of Stamped, Plain and Leanungd Try Wars. Japanned Tin Ware.

Mr. F. Haberman will continue the man-ufacture of Stamped Ware and all other goods appertaining to his line, and will protect the reputation so long enjoyed by us upon all our manufactures.

Hoping our old friends and patrons will share a portion of their favors with our successor, and thanking them for every kindness shown us during our stay in busi-

ness, We remain, yours,
FRASER, BELL & LOUGHRAN.
N. B.—Mr. Daniel Loughran, formerly
with us, will continue on with our successor,
where he will be pleased to meet our former
customers. F. B. & L.

The St. Louis Stamping Company have ssued, under date of 25th ult., revised price have been appointed sole agents for Garritt lists of Deep and Shallow Stamped Ware,

er		
		LOUIS,
er	Deep Hamped Ware.—Discount 60 per co	ent.
he	Quarts 7 8 10 14 17 21 Per doz	90
W	Disselve Dec 13,00 10,00 10,00	30100
s-	Per doz \$7.50 8.50 9.50 11.00 13.00	18.00
	Pints	3
ne of	Quarts	5 3.10
to	Per doz. \$3.40 4.00 4.75	5.50
of	Per doz \$0.00	3
g	Quarts	3.60
e, e	Fer doz	6.50
le	Nos	4
. ,	Quarts 1/2 2	
r	Quarts	3-75 to
r i-	Deep Pudding Pans, Light.	7.50
n b.	Deep Fudding Fans, Light.   Quarts	2.50
f	Plain, per doz \$2.80 3.25 3.75 4.75	5.25
0	Tinned, per doz. 1.65 1.00 2.28 2.50 Quarts. 4 5 6 8 Plain, per doz. \$2.80 3.25 3.75 4.75 Tinned, per doz. \$2.80 3.25 3.75 4.75 Tinned, per doz. 3.50 4.00 4.25 5.50 Cullenders, with Feet Loose. Nos. 104 205 306 Per doz. \$3.75 4.25 5.00 Extra Deep Tubed Cake Pans. Nos. 42 43 44 45 Per doz. \$3.75 4.25 4.75 5.25 Lipped Sauce Pans, Light, with Covers, Nos. 09 010 012 014	407
_	Extra Deep Tubed Cake Pans.	6,00
00	Per doz \$3.75 4.25 4.75 5.25 Lipped Sauce Pans, Light, with Covers,	5-75
00	Nos	4.75
00	Per doz \$5.35 6.50 7.50 8.75	10.25
80	Nos 09 010 012 014 Per dos \$2.00 2.50 3.00 3.30 Nos 018 020 022 024 Per doz \$4.35 5.10 6.00 7.00	016
	Per doz\$4.35 \$.10 6.00 7.00	8.25
1	Nos 9 10 12 14 16	18
d r-	Nos 20 22 24 26 28 Per doz \$7.60 8.50 10.25 11.50 12.80	30
1-	Nos 9 10 12 14 16	18
1	Per doz. \$4.35 5.10 6.00 7.00 Lipped Sauce Pans, Heavy, with Covers, Nos \$9 10 12 14 16 Per doz. \$0 22 24 25 28 Per doz. \$7.60 8.50 10.35 11.50 12.80 Lipped Sauce Pans, Heavy, without Cover Nos \$9 10 12 14 16 Per doz. \$2.25 2.75 3.50 4.00 4.75 Nos 20 22 24 26 28 Per doz. \$6.22 7.00 8.50 9.50 10.50 Nos 2½ 3 4 6	30
8	Nos 2½ 3 4 6	8
- 1	Nos 2½ 3 4 6 Per doz \$5.00 5.50 7.00 8.00 Lipped Preserving Kettles, with Covers, Retir	ned.
t	Quarts 2 2½ 3 4 5 6 Per doz \$4.85 5.80 7.10 8.00 0.75 10.75	7%
1-	Lipped Preserving Kettles, without Covers, F. Nos 16 18 20 22 24 26	tet'd.
y	Per doz \$4,00 4.75 5.75 6.50 8.00 8.25 Deep Proserving Kettlez with Covers Retin	9.50
,	Lipped Preserving Keftles, with Covers, Retin Nos	30
e	Per doz \$8.80 9.90 11.25 12.60 14.00 Deep Preserving Kettles, without Covers, Reti	15-75 nn'd
1	Nos. 20 22 24 26 28 Quarts. 3½ 4½ 5½ 6½ 8 Per doz. \$7.40 8.40 9.50 10.60 11.60 Wash Bowls, Strong.	30
7	Wash Bowls, Strong. Nos	400
8	Nos	4.75
7	Nos	040
-	Nos	4.75
0	Nos	400
	Retin'd, 4.50 4.75 5.00 5.55 Wash Basins, Light,	6.00
0	Nos 6 61/2 7	
EL.	Plain, per doz \$1.80 2.20 2.55	3,00
h	Plain, per doz \$1.80 2.20 2.55 Tinned, 2.50 2.90 3.20 Wash Basins, Medium.	8 3.00 3.50
h	Wash Basin Feet.	8 3,00 3,50 16 4 00 5,00
h	Plain, per doz \$2.25 2.50 2.75 3.20 Tinned, 2.80 3.30 3.50 4.25 Wash Basins, Strong, Retinned, with Rings	4 00 5.00 8.
1	Plain, per doz . \$2.25 2.50 2.75 3.50 Tinned, " 2.80 3.30 3.50 4.25 Wash Basins, Strong, Retinned, with Rings Nos	4 00 5.00 8. 032 5.25 ings.
1	Plain, per dox. \$2.25 2.50 2.75 3.20 Tinned, 2.80 3.30 3.60 4.25 Wash Basins, Strong, Retinned, with Rings Nos 026 028 030 Per doz \$3.75 4.25 Wash Ba-ins, Extra Strong, Retinned, with Ri Nos 26 28 30	4 00 5.00 8. 032 5.25 ings.
1	Plain, per dox. \$2.25 2.50 2.75 3.20 Tinned, 2.80 3.30 3.60 4.25 Wash Basins, Strong, Retinned, with Rings Nos 026 028 030 Per doz \$3.75 4.25 Wash Ba-ins, Extra Strong, Retinned, with Ri Nos 26 28 30	4 00 5.00 8. 032 5.25 ings.
1	Plain, per doz.   \$2.25   2.50   2.75   3.20   Tinned,   2.80   3.10   3.00   4.25   Wash Basins, Strong, Retinned, with Rings Nos.   0.00   0.25   0.30	4 00 5.00 8. 032 5.25 ings. 32 6.75 5 21.00 27.00
1	Plain, per dox	4 00 5.00 8. 032 5.25 ings. 32 6.75 5 21.00 27.00
1	Plain, per dox	4 00 5.00 8. 032 5.25 ings. 32 6.75 5 21.00 27.00
h il e il	Plain, per dox   \$2.25   2.50   2.75   3.20   1.75   Tinned,   2.80   3.0   3.00   4.25   Wash Basins, Strong, Retinned, with Rings Nos.   0.60   5.37   4.25   4	4 00 5.00 8. 032 5.25 ings. 32 6.75 5 21.00 27.00 14 5 8.40 5 30.00 36.00
n il e	Plain, per dox   \$2.25   2.50   2.75   3.20   1.75   Tinned,   2.80   3.0   3.00   4.25   Wash Basins, Strong, Retinned, with Rings Nos.   0.60   5.37   4.25   4	4 00 5.00 8. 032 5.25 ings. 32 6.75 5 21.00 27.00
n il e il il i i i i i i i i i i i i i i	Plain, per dox	4 00 5.00 8. 032 5.25 ings, 32 6.75 5 21.00 27.00 14 5 8.40 5 30.00 36.00
h il	Plain, per dox	4 00 5.00 8. 032 5.25 ings, 32 6.75 5 21.00 27.00 14 5 8.40 5 30.00 36.00
n il e il il i i i i i i i i i i i i i i	Plain, per dox	4 00 5.00 8. 032 5.25 ings, 32 6.75 5 21.00 27.00 14 5 8.40 5 30.00 36.00
h il	Plain, per dox	4 00 8. 032 5.25 ings. 32 21.00 27.00 14 5 8.40 5 30.00 36.00 11
h il	Plain, per doz   \$2.25   2.50   2.75   3.20   Tinned   2.80   3.0   3.0   4.05   Wash Basins, Strong, Retinned, with Rings Nos   0.26   0.28   4.75   Wash Basins, Strong, Retinned, with Rings Nos   0.26   0.28   4.75	4 00 8. 032 5.25 ings. 2.25 6.75 5 21.00 27.00 11 (x2/4 1.25) (x2/
h i i i i i i i i i i i i i i i i i i i	Plain, per dox	4 00 8. 032 5.25 ings. 2.25 21.00 27.00 14 5 30.00 36.00 011 (x2.34 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25
h i i i i i i i i i i i i i i i i i i i	Plain, per dox	4 00 8. 032 5.25 ings. 2.25 21.00 27.00 14 5 30.00 36.00 011 (x2.34 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25
h i i i i i i i i i i i i i i i i i i i	Plain, per dox	4 00 8. 032 5.25 ings. 2.25 21.00 27.00 14 5 30.00 36.00 011 (x2.34 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25
h i i i i i i i i i i i i i i i i i i i	Plain, per dox	4 00 8. 032 5.25 ings. 2.25 21.00 27.00 14 5 30.00 36.00 011 (x2.34 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25
	Plain, per dox	4 00 5,05 5,05 5,05 5,05 5,05 1,00
	Plain, per dox	4 00 5,05 5,05 5,05 5,05 5,05 1,00
	Plain, per dox	4 00 5,05 5,05 5,05 5,05 5,05 1,00
	Plain, per doz   \$2.25   2.50   2.75   3.20   Tinned,	4 00 8. 032 5.25 5.55 10.68 32 6.75 21.00 37.00 14 4 5 5 30.00 36.00 011 (2.25 10.00 5 7.50 10.00 5 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30
	Plain, per dox	4 00 5,05 5,05 5,05 5,05 5,05 1,00
	Plain, per doz   \$2.25   2.50   2.75   3.20   Tinned,   2.80   3.0   3.0   4.05   Wash Basins, Strong, Retinned, with Rings Nos   0.06   0.28   0.30   0.09   er doz   \$2.75   4.25   4.75   4.75   Wash Basins, Extra Strong, Retinned, with Rings Nos   2.60   2.80   3.00   2.80   2.	4 00 8. 032 5. 05 1 25 1 25 1 25 1 25 1 25 1 25 1 25 1
	Plain, per doz   \$2.25   2.50   2.75   3.20   Tinned,   2.80   3.0   3.0   4.05   Wash Basins, Strong, Retinned, with Rings Nos   0.06   0.28   0.30   0.09   er doz   \$2.75   4.25   4.75   4.75   Wash Basins, Extra Strong, Retinned, with Rings Nos   2.60   2.80   3.00   2.80   2.	4 00 8 032 5 05 8 05 92 6 75 5 21.00 011 12 12.55 2 00 12 14 4.75 00 14 4.75 15 2 00 15 15 2 00 16 17 2 00 17 2 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 3 00 18 2 2 5 5 5 2 5 5 0 2 2 2 2 2 2 2 2 2 2 2
	Plain, per dox	4 00 8 032 5.25 5.05 18.32 6 .75 5 21.00 36.00 011 4 5 5 00 11 4 6 00 11 6
	Plain, per dox	4 00 8 032 5.25 5.05 18.32 6 .75 5 21.00 36.00 011 4 5 5 00 11 4 6 00 11 6
	Plain, per dox	4 00 8 032 5.25 5.05 18.32 6 .75 5 21.00 36.00 011 4 5 5 00 11 4 6 00 11 6
	Plain, per dox	4 00 8
	Plain, per dox	4 00 8
	Plain, per dox	4 00 0 4 00 0 3 0 0 0 1 1 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2
	Plain, per dox	4 00 0 4 00 0 1 0 1 0 1 0 1 0 1 0 1 0 1
	Plain, per dox	4 00 0 4 00 0 1 0 1 0 1 0 1 0 1 0 1 0 1
	Plain, per dox	4 00 8 0 4 00 8 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Plain, per dox	4 00 8 0 4 00 8 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Plain, per dox	4 00 0 36 00 11 12 13 0 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Plain, per doz   \$2.25   2.50   2.75   3.50   Wash Basins, Strong, Retinned, with Rings Nos   0.66   0.78	4 00 8 032 5.25 5.56 4 4 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

21
Strong Sauce Paus, without Covers. Nos 20 22 24 26 28 30
Nos 20 22 24 26 28 30 Quarts 34 4½ 5½ 5½ 6½ 8 10 Per doz \$10.00 11.25 12.50 14.00 15.50 18.00 Patent Stove Sauce Pans, with Covers, Nos
Nos
Nos
Quarts 31/2 51/2 8 10
Patent Stove Kettles, without Covers.  Nos
Per doz
Par lb Soner Cover, Tea Rettie.
Sauce Pan Covers, Plain.  Nos. 9 10 12 14 16 18  Per doz \$0.45 .55 .65 .75 .85 1.05  Nos. 20 22 24 26 28 30  Per doz \$1.50 1.50 1.75 2.00 2.30 2.55  Kettle Ears.
Nos
Nos
Oyster Stands, Complete.  Retinned, per doz. Stands
For Plates and Covers see Stamped Ware.  Wood Handled Britannia Laddes.  Nos.
Inches
PLAIN STAMPED WARE. Discount 60 per cent.
Oval Rimmed Boller Covers.    Nos
Pint
Quart
Cake Box Covers. Inch
Common Pot Covers. Inch 7 7¼ 8¼ 8¾ 9¼ 9⅓ 9⅓ 9⅓ Per gro.\$6.90 7.00 8.25 8.75 9.35 9.70 10.00
Per gro.\$11,00 11.50 12.00 12.75 13.50 14.25 15.00 18.00 Coffee Pot Covers, Plain.
Per doz
Per gross
Inch 8½ 9 9½ 10 10½ 11 11½ Per gross\$14.75 16.25 17.00 18.50 20.00 22.00 23.25 Tea Kettle Breasts, Plain Covers.
rer gross\$14,75 10.25 17.00 10.50 20.00 22.00 23.25 33.25 10. Tea Kettle Breasts, Plain Covers, Inch
Per gross\$7.10 8.60 9.70 10.50 11.90
Pint
Inches
Round Tea Pot Breasts and Covers, Spun, Hinged and Rimmed.   Pint
Plain Pie Plates
Inch         8         9         10           Per gross         \$9.70         11.00         13.25           Square Plates, Full Sheet         per gross, \$22.00           Scalloped Pie Plates,           Inch         7         8         9           Per gross         \$6.8s         8.00         8.00           8         8         9         8
Scalloped Pie Plates,   8 9
Per gross
Per gross
Per gross
Inch
Nos
Nos
Patty Pansper gross, Heart, \$1.65; Star, \$1.50 Grater Blanks.
Per gross       \$4.15       8.25       15.65         Stove Pipe Flanges, Tin.       \$x10       5½x10       6x10
Oval Scalloped Patty Pans
Stove Pipe Flanges, Spin   2nc.
Plain, per doz\$0.85 .85 .85 .90  Japanned, per doz 1.25 1.25 1.25 1.30  Chamber Pail Fixtures.
6¼ inchper gross, IC, \$4.80; IX, \$6.25 Pot Covers, with Beaded Edge and Ring, Inches.
Quarts (old 8, 10, 12)         10         12         14           Per doz. set         \$3.00         3.75         4.75           Per doz. set         Wash Basin Bottoms.         3.75         4.75           6½ inch
Inches
Nos. 6 7 8 9 Per doz \$1.15 1.40 1.65 2.00 Coffee Pot Lips, to Rivet. Per gross Small, \$1.75; Large, \$2.00 Tea Kettle Covers, Rimmed, 4½ In., per gross, 5.50 Steamer Covers, Wire Edge, with Rings.
Tea Kettle Covers, Rimmed, 4½ In., per gross, 5.50 Steamer Covers, Wire Edge, with Rings.
Nos
Tea Kettle Bottoms, Heavy.
Pint
Prit
Nos
C. E. Walbridge, Buffalo, N. Y., has issued the following price list of Iron Reser-
voir Vases for Lawns, &c., for the season of 1878. The assortment is large, and com-
prises some new and elegant designs. The
improvement in these Vases consists in a reservoir base, which contains water. The

by experience that the earth is kept moist and in good condition for a period of ten to fifteen days without resupplying the reser-

#### Price List.

Price List.

Q 1.—Hight, 61 inches; diameter of vase, 28 inches; width, including handles, 42 inches; base, 22 inches square; capacity of reservoir, 2½ gallons.

G 2.—Hight, 54 inches; diameter of vase, 28 inches; width, including handles, 42 inches; base, 21 inches square; capacity of reservoir, 2½ gallons.

G 3.—Hight, 43 inches; diameter of vase, 28 inches; width, including handles, 42 inches; hase, 22 inches square; capacity of reservoir, 2½ gallons.

G 4.—Hight, 36 inches; diameter of vase, 28 inches; width, including handles, 42 inches; base, 21 inches square; capacity of reservoir, 2½ gallons.

E 1.—Hight, 48 inches; diameter of vase, 22 inches; width, including handles, 30 inches; base, 17 inches square; capacity of reservoir, 1½ gallons.

E 1.—Hight, 41 inches; diameter of vase, 22 inches; width, including handles, 30 inches; base, 17 inches square; capacity of reservoir, 1½ gallons.

hase, 17 inches square; capacity of reservoir, 1½ gallons

2.—Hight, 41 inches; diameter of vase, 22 inches; width, including handles, 30 inches; base, 14 inches square; capacity of reservoir, 1½ gallons.

2.—Hight, 3½ inches; diameter of vase, 22 inches; width, including handles, 30 inches; base, 17 inches square; capacity of reservoir, 1½ gallons.

2.4—Hight, 27 inches; diameter of vase, 22 inches; width, including handles, 30 inches; base, 17 inches square; capacity of reservoir, 1½ gallons.

5.—Hight, 4½ inches; diameter of vase, 22 inches; base, 17 inches square; capacity of reservoir, 1½ gallons.

5.—Hight, 3½ inches; diameter of vase, 22 inches; base, 17 inches square; capacity of reservoir, 1½ gallons.

6.—Hight, 3½ inches; diameter of vase, 32 inches; base, 17 inches square; capacity of reservoir, 1½ gallons.

6.—Hight, 30 inches; diameter, 12 inches; base, 17 inches square; capacity of reservoir, 1½ gallons.

6.—Hight, 30 inches; diameter, 12 inches; base, 17 inches square; reservoir, 1½ gallons.

6.—Hight, 34 inches; diameter of vase, 32 inches; base, 17 inches square; reservoir, 1½ gallons.

6.—Hight, 34 inches; diameter of vase, 32 inches; base, 17 inches square; reservoir, 1½ gallons.

ons.
3.—Hight, 34 inches; diameter of vase,
3.—Hight, 34 inches; diameter of vase,
8 inches; base, 22 inches square; reservoir,
1/2 gallons.
4.—Hight, 27 inches; diameter of vase, 28 inches; width, including handles, 38 inches; base, 21 inches square; reservoir, 2½ gal. 1.—Hight, 53 inches; diameter, 28 inches base, 22 inches square; reservoir, 2½ galns .—Hight, 46 inches; diameter, 28 inches ase, 21 inches square; reservoir, 2½ gal

ons. 3.—Hight, 32 inches; diameter, 28 inches base, 22 inches square; reservoir, 2½ gal 

base, 21 inches square; reservoir, 2½ gallons.

3.—Hight, 45 inches; diameter of vase, 19 inches; width, including handles, 28 inches; base, 17 inches square.

B.—Hight, 31 inches; diameter of vase, 19 inches; width, including handles, 28 inches; base, 17 inches; diameter of vase, 19 inches; width, including handles, 28 inches; base, 14 inches; diameter of vase, 10 inches; width, including handles, 28 inches; base, 14 inches square.

D.—Hight, 40 inches; diameter of vase, 16 inches; base, 14 inches square; capacity of reservoir, 1½ gallons.

2.—Hight, 27½ inches; diameter of vase, 16 inches; base, 14 inches square; capacity of reservoir, 1½ gallons.

3.—Hight, 21 inches; diameter of vase, 16 inches; base, 10½ inches square; capacity of reservoir, 1½ gallons.

1.—Hight, 38 inches; diameter of vase, 15½ inches; width, including handles, 25 inches; base, 14 inches square.

2.—Hight, 36% inches; diameter of vase, 3.—Inches; diameter

American Pig.-We hear of considerable inquiry for Pig Iron, but the same wide difference (so often noticed of late) between the views of buyers and makers exists, and as a consequence, few transactions of any magnitude have transpired. We hear of sales of 800 tons No. 1 and 500 tons No. 2 on private terms, and 1000 tons Thomas Nos. 1 and 2 X at \$18.50 and \$17.50 respectively. We quote: Foundry No. 1, \$18 @ \$18.50; Foundry No. 2, \$17 @ \$17.50; Gray Forge, \$16 @ \$16.50.

Scotch Pig.-The demand for Scotch Iron is very trifling. The only sales we hear of are in small retail lots for local consumption. We quote: Glengarnock, \$24.25; Eglinton, \$23.50; and Coltness, \$25.

Rails.—This has been a quiet week so far as Rails are concerned, and we have not heard of a single transaction, either in Steel or Iron, that is worth reporting. The price of Steel continues strong, and we quote as before: Steel, at mill, \$43 @ \$44, and Iron, according to quality, terms of payment, &c., \$32 @ \$36.

Old Rails.-There is an abundant supply of Old Rails and but few inquiries. sales are reported, and we quote the market

nominally \$18 @ \$19 here.

Scrap.—In the absence of business we quote No. 1 Wrought, from yard, \$21 @ \$22, which is the nominal price.

#### METALS.

Copper .- Sales during the week have not exceeded 200,000 lb Lake Superior at 16 1/4 @ 17\$. The stock here we estimate at about 2,000,000 lb, which is moderate; but the demand for domestic requirements is more moderate still; hence the low prices till ruling. New Copper is expected here by the 18th or 20th inst. Baltimore we quote 1714; nominally. As per cable, Best Selected remains steady in England, still being quoted £70, while Chili Bars have given way 10/, being down to £62. 10/. Mail accounts from London have reached us to the 20th of The stock at Liverpool and Swansea prises some new and elegant designs. The improvement in these Vases consists in a reservoir base, which contains water. The Vase is divided near the center, the lower part being the reservoir for water and the upper part being the receptacle for earth. A pril 15, 1875. Stock of Chili Copper at Havre 9300 tons fine, against 10,450 April 15, 1875; stock of Chili Copper afloat and chartered for, 11,000 tons fine, against 11,200 April 15, 1877; stock of foreign Copper at London, chiefly Australian, 5702 tons fine, against 2766 tons April 15, 1877. The total the earth by capillary attraction. It is found against 3766 tons April 15, 1877. The total

import of ores, regulus, pyrites and ingots into England during the first quarter had been 19,267 tons, against 21,672 in 1877 and fifteen days without resupplying the reservoir, or any attention whatever. These goods are illustrated in an advertisement on page 31. The list is subject to discount 30 per cent.

PATENT RESERVOIR VASES. lated by the combination of manufacturers, and which are unchanged. For English relice Sheathing Metal the price remains at the reduction last quoted, viz.: 14¼¢ @ 15¢, currency, in bond, at which there is a fair demand. American is dull at 20¢. We quote New Sheathing Copper, 26¢; Braziers', 28¢, and Bolts, 28¢; American Yellow Sheathing Metal, 20¢; Yellow Metal Bolts, 25¢, and English Yellow Sheathing Metal, 141/2¢ @ 15¢, currency, in bond.

Tin.—Our market remains unchanged.
Straits on the spot is worth 14¼¢; English
Common, 14¼¢; and Banca, 17¢, all gold,
large lines. London cables Straits Tin £62.
10/, and Singapore, \$18.50 per picul, which
shows no change. The latter market keeps
very steady, and above the parity of our
very. The demand here seems to be picking own. The demand here seems to be picking up a little. Tin Plates.—There is no response here yet to the reduced make in England. Our market is flat, the demand continuing light. We quote large lots, ordinary brands, gold, per box, as follows: Charcoal Bright, \$5.87½ @ \$6.12½; ditto Ternes, \$5.40 @ \$5.62½; Coke Tin, \$5 @ \$5.25; and ditto Ternes, \$4.87½ @ \$5. We receive the ditto Ternes, \$4.87½ @ \$5. We receive the following from Gloucester, England, dated April 15th: "At a meeting of the committee ppointed by a large and influential section Tin Plate makers of Birmingham) held this day at Gloucester, it was unanimously resolved to call a general meeting of the en-tire trade, to be held at the Mackworth Arms Hotel, Swansea, on Tuesday, April 23d, and to propose for consideration the following resolutions: 1. That the make be reduced one-third for three months from the 29th April, such reductions to be based upon the maximum make of five hundred boxes for each steam mill and four hundred boxes for each water mill, each maker to reduce in any way most convenient to him, so that a full and effective reduction of not less than one-third is made in the month. 2. That a public accountant be appointed to examine and certify from the pay book of each work at the beginning of every month, the make of the mills of such works for the preceding month. 3. That no mill be started during this time that has not been at work for the last three months.
4. That a deed be drawn up binding each firm faithfully to conform and carry out this arrangement, under a fine and penalty of £500, to be recoverable in a court of law. That a reorganization of the Trade Asso-5. Into a reorganization of the Trade Asso-ciation be formed and a president and coun-cil appointed." The foregoing shows that this time every precaution has been taken to prevent the swerving from this agreement of curtailment. It may, therefore, prove successful, and be the means of once more placing this down-trodden article on a basis more remunerative to the producer and dealer than it has been for upward of four

Lead .- A sale is bruited about of 150 tons Common Domestic at 31/4 @ 3.70¢, currency, but we cannot trace it to a reliable source. The market is indeed quite stagsource. The market is indeed quite stagnant and the above figure an altogether nominal quotation. We receive the following from England, dated April 18: "Lead continues in small request. Quotations are: Good Soft English Pig, £17 @ £17. 2/6; Sheets, £18. 10/; Pipe, £19, less 3½ %, free on board. Soft Spanish, without silver, £17, less 2½ % on quay." Manufactured is in request, but prices are without change, and we quote Bar 5½¢; Pipe, 6¢; Sheet, 6½¢; we quote Bar 5½¢; Pipe, 6¢; Sheet, 6½¢; and Tin-Lined Lead Pipe, 15¢, all less 10 % to the trade.

Spelter and Zine.-Domestic Spelter seems to be in a bad way, if it is true, as we are assured it is, that it has been offered as low as 5¢, currency, at Waterbury, Conn. Very little transpires in it here, and we quote the same, nominally,  $5 \notin @5 \% \notin$ , currency. About foreign we need not speak any more, as it has ceased to be imported here, and has lost all practical interest in this market. Sheet Zinc is in fair request, and prices are steady at \$\phi\$, gold, for Mosselman and 634\$, currency, for Domestic.

Antimony.—The price at London remains £51 for "Cookson." Some of the latter brand sold at 12½¢, gold, but holders now again ask 13¢, gold. The market remains steady for outside brands such as "Hallet," "Johnson" and "Matheson," which may be quoted 123/8¢ @ 125/8¢, gold.

#### OLD METALS, PAPER STOCK, &c.

Business in Old Metals still continues very dull. Composition is the only stock which is in good demand, but all other articles are without request. Prices remain nominally unchanged. In the Rag and Paper Stock market there is nothing doing whatever, and quotations of all grades of Paper Stock have declined to a purely eclined 1/2c. a pound.

for Old Metals are as follows :			
Copper, heavy per 1b.	\$0.13	0	**
Copper Bottoms	. 22	@	
Yellow Metal	.10	60	
Brass, heavy	.00%	0	
Brass light	.08	6	
Composition, heavy,	.1116		
Lead, solid	.023/		
Tea Lead	.02%	à	
Zinc	.03	0	
Pewter, No. 1	.00	6	
		6	
Pewter, No. 2.	.07		***
Wrought Iron pr ton.	17.00	@	* * *
Light do	11.00	@	
Stove Flate	9.90	@	***
Machinery do	11.00	0	***
Grate Bars	5.00	@	1.88
The prices current for Rage	s, &c.	ar	e a

Canvas.	Linen														Ib			@	
44	Cotton,	N	0	I	٠	۰		۰						0.6		5	C.	@	
5.6	4.6	N	0	2						0	0			66		256	C.	0	
White, !	No. 1					D	0			0		0	- 0	6.6				0	
4	No, 2						0	٥	٠		۰					23/4	C.	0	*
Seconds				 							0	۰			D.	3			
Mixed,	Woolen.		6	 5 6	,	8	к	e	×		*	*				2	C.	0	3
Soft,	do				*			8		×	*	×	٠,			514			
Gunny b	pagging.			٠			۰									3.	c,	@	
Jute bu	tts				۰									64		23/4	C.	@	

Kentucky bagging	" 1 C. @
Book Stock	41 21/1C. (A
Newspaper Stock	" 1%c. @ 1%c.
Wewspaper Stock	
Waste Paper and Scraps	1780. 00
Kentucky Bale Rope	4 0, 60
Oakum Junk, No. 1	4730. 00 3 0.
" No. 2	
Tarred Shaking	1 0, 40 1740
Grass Rope	" @ 3%c.
COAL	
6 3 P /4 P /-	

The feature of the trade this week is the auction sale, which took place yesterday.

Only 50,000 tons were sold, and, quite Only 50,000 tons were sold, and, quite naturally, there was a trifling advance. This was apparently produced by the desire to hedge against the advance announced for June. From an examination of the averages it will be seen that the advance amounts to only 5\$\phi\$ ton on the larger sizes, while in Chestnut there is a falling off of about 3\$\phi\$ ton. It has been noted by the retail dealers that business for the last three or four days has been quite good. The general trade it would seem has also felt some or four days has been quite good. The general trade it would seem has also felt some advantage from the sale, but no permanent benefit is apparent. The Philadelphia Ledger speaks of trade very encouragingly, although it is difficult to see where or upon what the encouragement is based. The what the encouragement is based. The 152d sale of Coal by the Delaware, Lacka-wanna and Western Railroad Company took place yesterday. Only 50,000 tons were sold. The following were the prices obtained: 6,000 tons Steamer sold at. \$3,30 @ \$3,32½ 10,000 " Grate sold at. 3-30 @ 7,000 " Egg sold at. 3-45 @ 20,000 " Stove sold at. 3-75 @ 3-77½

7,000 " Chestnut s	old at	3.15 @	
Mr. F. E. Sawar	rd furnis	hes us wi	th the
following table gi	ving a	comparison	n with
previous sales this	year:		
Size. Jan. 30.	Feb. 27.	March 27.	May 1.
Steamer\$3.10	\$3.1136	\$3.25	\$3.305%
3rate 3.1216	3.07 1/2	3.21%	3.30
Egg 3.14	3.15%	3.40	3-45
Stove 3.57	3-55	3.6934	3.76 %
Chestnut 3.11	3.00	3.18	3.85
Dag	21		

#### PHILADELPHIA.

Office of The Iron Age, 220 South Fourth St. | PHILADELPHIA. April 30, 1878. | Business, although exceedingly quiet for the time being, is showing signs of improvement, and it is believed that the period of greatest depression has already been passed. The indications of abundant crops, as well as a good market for them, begins to have a cheering influence in business circles, which it is expected will be more clearly developed as the season advances. The increased earnings of the leading railways is also an encouraging feature, and is already causing some activity in the workshops connected with the railway interests. Car building is quite active, the rail mills are pushed to their ut-most capacity, and there are fair prospects of orders for locomotives, machine tools, &c. At the Baldwin Works several fair-sized orders have been entered within the past few days, including one for three locomotives for a Peruvian railway.

The Paris Exposition is attracting a good

deal of attention, and a large number of representatives from leading houses in Philadelphia are already on the way there. Among those who sailed last Saturday by the American line, we may mention Mr. S. Disston, of the Keystone Saw Works, and Mr. F. Lawton representative of G. H. Barnett of ton, representative of G. & H. Barnett, of the Black Diamond File Works.

Pig Iron.—The market remains essentially unchanged, and our remarks of last week would fairly indicate the present condition of business this week. Rumors are current of sales made at nearly a dollar per ton below regular quotations, and there is no doubt transactions of this character have been somewhat numerous during the month now closing. The market is therefore dull, and irregular, and parties who are compelled to realize find the market in a most de-pressed condition, and can find buyers only by submitting to heavy concessions from asking prices. This, however, does not rep-resent the whole market, as the best standard brands are taken at former quotations, with no prospect of reduction. In Bessemer Iron we notice considerable firmness, and in some instances we know of sales in 1000 ton lots at an advance of 2 per cent. over the price paid a week ago. The immediate condition of the general market, however, is most unsatisfactory, although there is a growing impression that with stocks steadily creasing a change for the better cannot Nickel.-We hear of no change. The be far distant. Sanguine predictions have metal is certainly dull enough, but we presume good quality could not be had below \$1.30, currency, our previous nominal quonow, and trading is therefore confined exnow, and trading is therefore commence exclusively to meeting present requirements. We continue quotations as follows, although occasional sales are frequently made as above noted at 50c. to \$1 less money, say, \$18.50 @ \$19 for No. 1 Foundry; \$17 @ \$17.50 for No. 2 Foundry, and \$16 @ \$18 for Gray Forge; Mottled at \$15.50.

Ores Magnetic Iron Ores are quoted at

Ores.—Magnetic Iron Ores are quoted at \$2.50, f. o. b. at Hacklebarney mines, for "Blue" Ore, hand-broken and selected. Blooms.—The market is quiet and steady at about the following figures: Sunken Scrap Blooms (2464 h), \$42 @ \$45; Northern Ore Blooms (2240 h) \$37 @ \$39; best quality Charcoal Billets (2240 h) for wire

low figures, said to be about \$28. Nominal rates here are: Soapstone, \$30; boiled on ore, \$33; extra quality for hoops and rods, \$35—all Philadelphia delivery.

Plate and Tank Iron.—There is no im-

provement to note, either in price or demand, and the market is as dull and unsatisfactory as ever. The only sales reported are small lots with an occasional transaction of 50 or 100 tons, nearly all being common qualities. There is nothing in the immediate outlook

prices. The mills have been running very prices. The mills have been running very irregularly of late, and it is quite likely there will be a further stoppage during the incoming month. Manufacturers being unable to find a market, and carrying large stocks already, are not disposed to increase them further, and have issued notice of an intention to reduce wages on the 1st proximo. It is not known yet whether this will be accepted by the men, but it is certain that at least some of the mills will be closed if it is not. This step is much regretted by manufacturers, but the necessities of times have forced them into this position. We quote: Refined Sheet Iron, No. 25 to We quote: Refined Sheet Iron, No. 25 to 28, 3.4 $\phi$  @ 3.5 $\phi$ ; No. 22 to 24, 3.3 $\phi$  @ 3.4 $\phi$ ; No. 16 to 21, 3.2 $\phi$ ; Best Bloom Sheets, No. 25 to 28, 5.2 $\phi$  @ 5.4 $\phi$ ; No. 22 to 24, 5 $\phi$ ; No. 16 to 21, 4.7 $\phi$  @ 4.8 $\phi$ ; Common Red Plates, 5-16 to 18, 2.4 $\phi$  @ 2.5 $\phi$ ; Refined Plates or Blue Annealed, 5-16 to 18, 2.5 $\phi$  @ 2.6 $\phi$ ; American, R. G., 5-16 to 18, 3 $\phi$  @ 3.1 $\phi$ ; Best Bloom, 5-16 to 18, 4.9 $\phi$  @ 5 $\phi$ ; Philadelphia Russia, 6 $\phi$  @ 6.5 $\phi$ ; A. Patent Planished, 10½ $\phi$ ; B. Patent Planished, 9½ $\phi$ ; Bloom Galvanized, 40%; Refined Galvanized, 50%.

Bar Iron.-There seems to be more in quiry for Bar Iron, but we cannot learn that there is any increase of actual business Buyers appear to make numerous inquiries before purchasing even small lots, and one before purchasing even small lots, and one purchase only may be the result of half a dozen inquiries. There is a strong effort made by buyers to get prices down, but we cannot learn that this has been successful, except in cases where quality has been made in proportion. Business generally may be said to be dull and unsatisfactory, but with prices same as last quoted, viz.: 2¢ for Best Refined. Medium 175¢ @136¢; and Company 175¢ @136 Refined; Medium, 1.75¢ @ 1.85¢; and Com-

mon, 1.5¢ @ 1.6¢.
Structural Iron.—There is a fairly active business doing, with prospects of its con-tinuance during the summer months. Orders have been placed during the week for some-thing over 1000 tons, which, with contracts on hand and others likely to be given out at on hand and others likely to be given out at an early date, imparts a steadiness to prices, which may be quoted as follows: Angles, 2.25¢@ 2.50¢; Tees, 2.50¢; Beams, 2.7¢@ 2.8¢; Channels, 2.7¢@ 2.8¢. Skelp Iron.—We do not hear of any

sales, except small lots; outside parties are said to be offering Skelp at very low prices, but we cannot learn that it has resulted in business. We quote 2¢ @ 2.2¢, according to widths.

Steel Rails.—The market continues firm, and sales are made at gradually advancing prices. There seems to be a steady demand for small lots, which keeps the mills fully occupied, without materially reducing the amount of orders on their books. The tend-ency of the market is toward higher prices, and buyers who have delayed placing their and buyers who have delayed placing their orders find themselves in a worse position every week, with but slight prospects of gaining anything by further delay. Prices are difficult to quote, but the outside figure of last week is probably an inside figure this week, and at the advance the market is very firm. We quote \$45 @ \$44 at Eastern mills, up to \$46 at Western mills, according

Iron Rails -The market continues in a healthy condition, and the activity noted for several weeks past is well maintained, with prospects of some important contracts being placed during the coming month. It is difficult to give exact figures, but reduced to a cash basis, our inside quotation may be considered a minimum price, and the outside figure about as high as can be realized for best quality of Rails. Within these figures thousand tons have been clo within the past few days, including a sale to-day of 1500 tons thirties for the Pacific Coast. There are other orders in the market, and a fair amount of additional business may be anticipated at an early date. The Iron Rail trade seems to have experienced a decided improvement and prices may be considered steady at \$32 @ \$34.50 at mills, according to section, quality and

orms of payment.
Old Ralls.—The market has not changed materially since date of our last report, but materially since date of our last report, but there appears to be a steady feeling, and really good Rails are not difficult to place at \$20. Other descriptions are not sought after, and cannot be placed at over \$19 @ \$19.50. Several sales of 200 or 300 tons each are reported at \$19.50, but the market is quiet, and would be easily affected under large offerings. The supply is not excessive, however; hence prices are steady, and with a somewhat firm feeling for first-class quality. We quote, \$19 @ \$20.50 with sales at \$19.50 @ \$20.
Scrap Iron.—There is a fair demand at

unchanged prices, say \$20 @ \$23 for Wrought, and \$14 @ \$16 for Cast. Nails.-The demand is not active, but in

consequence of light stocks and prospects of limited production, prices are steady and inchanged at \$2.50 as the wholesale figure.

unchanged at \$2.50 as the wholesale figure. Lead is again dull and heavy with limited sales at about \$3.50. Manufactured is steady. We quote: Bar, 5½¢; Pipe, 6¢; Sheet, 6½¢. Shot is active and firm, as follows: Chilled, 9¢ @ 10¢; Drop, 7½¢ @ 8½¢; Buck, 8½¢ @ 9½¢, all less the regular trade discount of 10 \$.

#### PITTSBURGH.

Office of The Iron Age, 77 Fourth Avenue, 1 PITTSBURGH, April 30, 1878.

There has been nothing particularly new developed in business circles during the past week; while there is a continued fair degree of activity, some of our manufacturers report that orders are not coming forward as freely as they did a few weeks ago. However, the great source of complaint is that ever, the great source of complaint is that owing to an active competition, the result of over-production, there is but little money being made, and it is not unfrequently the case that those doing the most business are worse off than others doing comparatively nothing. The fact of the matter is there has been a very fair business in all the leading There is nothing in the immediate outlook to indicate any prospect of important change. We quote: Common Plates,  $2.2 \notin (2.3 \notin)$ ; Tank Iron,  $2.3 \notin (2.5 \notin)$ ; C. No. 1,  $2.4 \notin (2.5 \notin)$ ; Shell Iron,  $2.75 \notin (2.5 \notin)$ ; Flange Iron,  $2.75 \notin (2.5 \notin)$ ; Shell Iron,  $2.75 \notin (2.5 \notin)$ ; Flange Iron,  $2.75 \notin (2.5 \notin)$ ; Shell Iron,  $2.75 \notin (2.5 \notin)$ ; Flange Iron,  $2.75 \notin (2.5 \notin)$ ; Shell Iron,  $2.75 \notin (2.5 \notin)$ ; Flange Iron,  $2.75 \notin (2.5 \notin)$ ; Shell Iron,  $2.75 \notin (2.5 \notin)$ ; Flange Iron,  $2.75 \notin (2.5 \notin)$ ; Shell Iron,  $2.75 \notin (2.5 \notin)$ ; Flange Iron,  $2.75 \notin (2.5 \notin)$ ; Shell Iron,  $2.75 \notin)$ ; Shell Iron,  $2.75 \notin (2.5 \notin)$ ; Shell Iron,  $2.75 \notin (2.5 \notin)$ ; S learned that their goods, even if the market for them is very dull, are much better than doubtful book accounts. True, suspensions have been very numerous of late, not only here, but throughout the whole country, but these are very largely the outcome of former years, and then many are anxious to go into bankruptcy now, under the apprehension that the law will soon be repealed. It is worthy of notice in this connection that there have been no important bankruptcies here in Pittsburgh for some time, and in view of the threatened repeal of the law it is fair to infer that none are contemplated.

Pig Iron.-The situation remains much the same as noted in our last report; while business is all that can possibly be expected, it is to the producing interest exceedingly unsatisfactory, as the market is unstable and unsatisfactory, as the market is unstable and prices unremunerative. The demand continues of a hand-to-mouth character; it is rare to hear of a round lot sale, and it may be safely inferred that a heavy discount has to be given in order to induce buyers to anticipate future wants. The most remarkable feature connected with the Pig Iron interest is that the production is kept up to anything like what it is, in view of the very unsatisfactory condition of the market. It is about as well established as anything can be that only those furnaces favorably is about as well established as anything can be that only those furnaces favorably located can realize actual cost, yet, according to the most reliable and latest data at hand, the production is larger than at this time last year, or, in other words, there is an increased number of furnaces in blast.

Local furnaces, in some of which mill owners are interested, are supplying the local demand more largely than ever before, and the demand for the product of outside fur-naces has been largely curtailed in consenaces has been largely curtained in consequence. Our city furnaces have nearly been constructed of late years and being supplied with all the latest appliances and improvements, it may be that they have the advantage of older furnaces in a cheaper cost of production; and their being owned between the progression of the preference. here they very naturally get the preference, everything else being equal. Commission merchants are feeling the effects of the increased business of our local furnaces, as it has curtailed the consumption and sale of Pig made away from here which they represent. The stock of first-class Mill Irons sent. The stock of first-class Mill Irons is not large and they are holding their own, notwithstanding there is not much inquiry for them, while poor stock, the product of poor ores and a large percentage of cinder, is hard to move, even at very low figures. Coke Irons may be quoted at \$17 @ \$17.50, 4 months, for best brands of Gray Forge; sales of 200 tons, a mixed lot, at \$15.50, 90 days, and 200 do. at \$15.50, 4 months. Bituminous Coal-smelted, choice brands of open Gray Red-short, \$10 @ \$10.50, 4 months; and the Coal-smelted, choice brands of open Gray Red-short, \$19 @ \$19.50, 4 months; and the Neutral and close Gray at \$18 @ \$18.50, 4 months; White and Mottled, \$16.50 @ \$17.50; Foundry grades, \$18 @ \$20. In regard to Charcoal Irons there is so little doing that it is difficult to quote; there is some Southern Charcoal Iron on the market, but it is not very good, and will not bring much, if any more than Coke or Coal Smelted Irons of same grades. The market for Foundry Irons of all grades is badly demoralized, and since the first of the year prices have declined \$1.50 to \$2 per ton. Bessemer Iron is weak and dull, but, so far as we can learn, there has been none sold below \$20, 5 months, for good brands.

Manufactured Iron.—While there is a

Manufactured Iron.-While there is fair volume of business done in the aggregate, matters continue very unsatisfactory, as prices, in addition to being ruinously low, are very irregular, and competition is as strong as ever. An order of any import-ance put upon the market is so cut that whoance put upon the market is occurred and ever gets it has but little to crow about. The market is open, and manufacturers being untrammeled by combinations, are at perfect liberty to make their own rates. Shipments have been stimulated for some time past by the very low rates of freight, both by river and rail, but some firms report that business has fallen off somewhat as compared with what it was a few weeks ago. Bars may be quoted at 1.60¢ @ 1.70¢, 60 days; Sheet, 2.70¢ @ 2.75¢ for No. 24; Tank and Plate, 2½¢ @ 2½¢; Oil-barrel Hoop Iron, 2.50¢ @ 2.70¢, the former rate to jobbers and the latter to consumers.

Nails.-The situation hereabouts continnes much the same as noted in our last report; business is fair and prices steady, and stocks very much reduced; indeed, some of our manufacturers report that it would trouble them to fill an order of a car load for prompt shipment. The limitation of production still continues, and this accounts for the light stocks in first hands, as all the factories in the West have been running but half time since last December. The regular monthly meeting of the Western Association takes place in this city on the second Wednesday of May, and it will then and there be determined whether the present arrangement in regard to production shall be continued or not. The indications, however, are that the Association will agree to a continuation of the present arrangement, as the trade are well aware of the natural consequences of an oversupply, which it is feared would be the result if the factories were started up full time. Prices are unchanged; less than 200 kegs, \$2.50, 60 days, 2 % off for cash; 200 kegs and upward, 40, 60 days.

Horse and Mule Shoes.—There is a fair degree of activity, but no change in prices. Juniata, in working lots, 31/4 ¢ and 4¼ ¢ ₺ B respectively.

Rails.—The Edgar Thomson Company quote firm at \$45, cash, delivered at works, also that they have orders booked to absorb their entire product for several months. Some 20 barges were shipped West last week by "Grey's Iron Line." Old Iron Rails continue dull, and prices remain about as last quoted, \$20 @ \$20.50, cash, delivered

Steel .- The demand continues fairly active, and the mills still appear to have about all they can do. Tool Steel mostly at 11 \$\phi\$ (\$\text{d}\$ 12 \$\phi\$, although some fine qualities are held at 13 \$\phi\$; Tire Steel, 4 \$\phi\$ (@ 5 \$\phi\$; Machinery do., 6 \$\phi\$ (@ 7 \$\phi\$; Spring, 6 \$\phi\$ (@ 7 \$\phi\$; Boiler Plates, 7 \$\phi\$ (@ 8 \$\phi\$.

Wrought Iron Pipe.-There is an inereasing demand, as there always is at this season of the year, and but for the heavy

discounts there would be no cause of comniscounts there would be no cause or com-plaint. Owing to the continued depression in the oil business, the demand for oil-well Tubing and Casing is not as brisk as it should be, but an improvement is looked for before long.

Scrap.—While business is not to say active, it is about all that can be expected in view of the general backwardness in nearly all branches of trade. Old Car Wheels are still quoted nominally at \$18 @ \$19, gross No. I Railroad Wrought Scrap, \$20 @ \$21; Boiler Scrap, \$23 @ \$24; Wrought Turn-ings, \$15 @ \$16; Cast Turnings, \$10 @ \$11; Car Axles, \$26 @ \$27; Car Springs, \$36 @

Window Glass .- Business appears to be falling off; orders are not coming forward as freely as they did a few weeks ago, but there is a fair degree of activity neverthe-Discounts unchanged, 70, 10 and 10 for car load lots.

White Lead .- There is a fair demand. although it is not as brisk as it usually is and should be at this particular time. No change in price;  $8\frac{1}{2}\phi$  is the combination rate for strictly pure in ton lots.

Coke.-It is not a little strange in view of the depression in the Pig Iron business that there should be an active demand for Coke, yet such is the case; operators inform us that they have no difficulty in placing all they can obtain. This may be accounted for by the fact that in consequence of its cheapness the consumption is increasing, and many of the Pig Iron furnaces are now using it in place of coal. We continue to quote at \$2.15 @ \$2.25 \$7 ton, free on cars n Pittsburgh.

Coal.-About 9,000,000 bushels have been started down the river within the past few days, but it should be borne in mind that the stock in first hands has not been reduced; only transferred from here to points below.
The market continues very dull, with but little prospect of any immediate improve ment, as the down-river markets are well supplied, and the consumption is light. The suppned, and the consumption is light. The limitation of production arrangement, in accordance with which the collieries in the Monongahela and Youghiogheny valleys have been stopped, expires to-morrow, but it is intimated that, owing to the dullness in the demand, the resumption will not be general. With what has been shipped out on this last rise, the down-river markets, there is reason to believe, will have enough stock to see them through the summer.

#### CHATTANOOGA.

Office of The Iron Age, Market and 8th Sts., (CHATTANOOGA, April 30, 1878.

Business is decidedly dull. Manufacturers have not slackened their production, but there is a noticeable increase in stocks at various mills of articles except Nails, Spikes and Bolts. This will be better for the trade when business revives, as it must very soon, if for no other reason because the country dealers' stocks are very low and inadequate to the demand, which must be considerably better in May than it has been in March. The feeling among manufacturers of all kinds of Iron is one of quiet hopefulness. They long since learned better than to look for any sudden spurts of trade, but their generally excellent collections, especially in the South-ern markets, has induced a faith that this section has begun to develop its business on solid foundations, and will steadily, though

slowly, advance.

The tendency here in manufacturing is rather toward finished articles of utility, such as Plows and other agricultural implements, than in the direction of more furnaces for making Pig Iron. The Southern Nail market is rapidly being monopolized by Southern makers. Southern Bars, Bolts, Spikes and Fish Plates have driven out all Northern makes. It will not be many years until our farmers are supplied not only with the coarser implements, but with Edge Tools, Saws and the like of Southern make.

Pig Iron.—The week has been the dullest of the season. The market is entirely without interest. No change of last week's quotations. We quote: Coke Irons—No. 1 Foundry, \$17.50 @ \$19; No. 2, \$15 @ \$17; Gray Forge, \$13 @ \$14; White and Mottled, \$11@ \$12. Hot Blast Charcoal—No. Mottled, \$11(@ \$12. Hot Blast Charcoal—No. 1 Foundry, extra, \$20(@ \$21; do., \$18(@ \$20; No. 2 Foundry, \$16(@ \$18; Gray Forge, \$15(@ \$17; White and Mottled, \$15. Cold Blast Charcoal—Car Wheel Metal, \$22.50(@ \$27.50; do., Extra Standard, \$24.60(@ \$29.50; Forge, \$17.60(@ \$22.

Muck Bar .- \$27 @ \$34 : Old Rails, \$16 @ \$17.50. Old Car Wheels, \$18.

Ores.—Brown Hematite, 50 to 56 %,; Pton, \$1.75 @ \$2.25. Red Fossiliferous, 50 to 56 %; Pton, \$1.70 @ \$1.90. The above prices for Ores delivered in Chattanooga on cars or on the wharf from flat-boats.

Nails.-The trade has slightly fallen off, though the mills continue running full. Western makers are forcing their stocks on the Southern market wherever they can at rates considerably below "association rates," but they have not yet created any considerable diversion from Southern mak-We quote at \$2.50, with usual discount on large lots.

Manufactured Iron.-The demand for Merchant Bars is quite fair for the season, though the mills are not pressed at all with orders. They are all running double turn.
The demand for Bolts and Spikes is fairly
good, though slightly lighter than for preceding weeks. Bar we quote at \$2. I lemand for Bolts and Spikes continues go We quote: Railroad Spikes, \$2.50; Light Rail, \$2.25; Track Bolts, \$3; Trestle Bolts, \$4.

Coke.—No change. Supply ample and quotable at usual price, \$2.50 \$\text{ton on cars}\$ in Chattanooga.

Coal-Is in light demand, and the supply being unusually full, prices tend downward. Chattanooga is next to Pittsburgh in the cheapness of fuel for manufacturing purposes. We quote run of mine at \$1.50 @ \$2 \$\text{g}\$ ton on cars in Chattanooga.

#### CLEVELAND.

CLEVELAND, April 30, 1878. Iron Ore.—There is literally no business doing in Iron Ore. No sales are reported. No inquiries are made. It is the general

policy of the ore companies to bring dov from the lakes no ore not positively sold. This line will be followed, excepting where companies have vessel charters, and are s compelled to provide the ore. A few of th prominent specular producing mines ar well sold up. Aside from these and one of two hematite mines, but a fraction of the year's product has been engaged. There is something of a weakening in the feeling, but in the absence of business no prices are quot-

Pig Iron.—In Pig Metal also there is greatlack of business, if we except the Bes-semer. There is a good demand for this semer. There is a good demand for this grade, and a number of large sales have been made lately. Prices for the usual "run of furnace" have been at \$18 @ \$18.50, cash, at the place of manufacture. Foundry Iron is very low, kept down by the offerings from the Hocking Valley region.

There is only an occasional inquiry for Mill Iron. Price is about \$16 @ \$18, according to quality. Charcoal Fig. is year, much

ing to quality. Charcoal Pig is very much better in inquiry, and sales are commanding better prices. Car Wheel grades are very

Bar fron a.d Nails.—There is a good demand for the manufactured article, and the mills are full of orders. Competition is less severe and prices more remunerative. The jobbers report trade very active.

Scrap Iron.—Every description of Scrap is firm. Old Rails rule at better prices. The mills are more particular respecting quality than they ever have been, and require a guarantee. Holders, under these restric-tions, are persistent for good prices. The market is quotable at \$21.50 for cash.

#### BOSTON.

APRIL 27.—Pig continues very depressed. Scotch Pig is dull and easter. We quote: \$20.50 @ \$21 for No. 1; \$19 @ \$19.50 for No. 2, and \$18.50 @ \$19.25 for Gray Forge. Bar continues quiet and steady, quoting \$40 for Refined and \$34 @ \$35 for Bolt. American Rails, \$32 @ \$37. Steel Rails, \$42 @ \$43, from mill. Nails are in light demand at understanding. from mill. Nails are in light demand at unchanged prices. Sheet is selling at 3¢ @ 3¼¢ ₱ lb. Russia is quiet at 10¾¢ @ 11¢. We quote English Spring Steel at 7¢ @ 8¢, gold; 9¢ @ 11¢ for German; 9¢ @ 11¢ for Machinery; 14¢ @ 15¢ for Cast; 10¢ @ 12¢ for Blister; 8¢ for American Spring; 13¼¢ @ 14¢ for Cast; 9¢ for Blister; and 8¢ for Machinery. All kinds of manufactured Iron continue rather dull. There is talk of a @ 14¢ for Cast; 9¢ for Blister; and 8¢ for Machinery. All kinds of manufactured Iron continue rather dull. There is talk of a large export sale of Nails at \$2.30. The steamer Minnesota, from Liverpool, brought steamer Minnesota, from Liverpool, brought op bundles, 25 cases Steel, order. The steamer Batavia, from Liverpool, brought 204 bundles, 13 cases Steel, H. B. Jackson; II cases Steel, F. A. Howard; 56 bars, 2 casks, 2 cases Steel, Wetherell Bros. The steamer Bulgarian, from Liverpool, brought to steamer Bulgarian, from Liverpool, brought to consider the steamer Bulgarian from Liverpool, brought to consider the steamer Bulgarian from Liverpool, brought to Cole. steamer Bulgarian, from Liverpool, brought 321 coils Iron, J. B. Moors & Co.; 337 ditto, Brown Bros. & Co.; 11,097 bars ditto, Naylor & Co.; 102 bundles Iron, Congdon, Carpenter & Co. Copper is dull and unchanged, quoting 17¢ @ 17½¢ for Ingot, with rumors of sales at lower figures. The Massachusetts, for Liverpool, took out 60 tons Copper Ore For manufactures we quote: Massachusetts, for Liverpool, took out 60 tons Copper Ore. For manufactures we quote: New Sheathing, 28¢; Bolts and Braziers, 30¢; Yellow Metal Bolts, 25¢.@ 25½¢; ditto Sheathing, 20¢. Lead is a trifle steadier, though we leave our quotations unchanged for the week. We quote: Pig, 3½¢@ 3¾¢, currency; Sheet, 6½¢; Pipe, 6¢; Tin-Lined Pipe, 15¢; Bar Lead, 5½¢; all of these, excepting Pig, are subject to the usual trade or 10 ¾ discount. Antimony is firm at 13¢.@ 13¼¢, gold, for Boston spot lots. Spelter is easy, closing at \$5.25 on the spot for is easy, closing at \$5.25 on the spot for 10-ton lots. Tin is weak, and we again reduce our quotations. The Minnesota, from duce our quotations. The Minnesota, from Liverpool, brought 500 boxes Tin Plates, Fuller, Dana & Fitz; 2084 boxes ditto, order. The Bulgarian, from Liverpool, brought 817 boxes Tin Plates, order. The Batavia, from Liverpool, brought 60 boxes Tin Plates, order. We quote: Straits, 14½¢ @ 14¾¢; Banca, 17¼¢ @ 17½¢; Refined English, 14¾¢ @ 15¼¢, gold. We quote Plates: Charcoal, I. C., \$6 @ \$6.25; Coke, \$5.25 @ \$5.50; and Terne, \$5.50 @ \$6, gold.—Commercial Bulletin. -Commercial Bulletin.

#### CINCINNATI.

Messrs. E. L. Harper & Co. (successors to Messrs. L. R. Hull & Co.), under date of April 29, write us as follows: The move-ment has been hardly as large during the past week, but still has been moderately good, while prices do not exhibit any de-cided changes. The supply of all grades continues ample for the present rather re-stricted consumption, and there certainly are no indications of any scarcity soon such as would lead to a healthy stiffening in prices. The Old Rail market continues without material change since last report : HOT-BLAST FOUNDRY.

Hanging Rock, No 1, Charcoal ..... \$22.00 @ 22.50

NO. 2.	30.00 (f) 20.50
" No. 1 Coke	19.00 @ 21.00
14 No. 2 10	18.60 @ 19.00
" No. 1, Stonecoal	18.00 @ 19.00
Virginia, No. 1 Coke	10.00 @ 20.00
No. 2 "	19.00 ( 19.50
Ala, and Tenn., No. 1 Charcoal	20.00 @ 20.50
No. 2	19.00 @ 19.50
Shawnee, No. 1 Stonecoal	19.50 @ 20.00
	18.00 @ 19.00
	10.00 @ 19.05
FORGE IRONS.	
Hanging Rock No. 1 Charcoal	19.50 @ 20.00
Hanging Rock No 1 Coke	18.00 @ 18.50
Virginia, No. 1	18.00 @ 18.50
Ala, and Tenn, No. 1 Charcoal	18,00 € 18,50
Red-short, No. 1 Coke	10.00 @ 20.00
Cold-short, No. 1 Stonecoal	16,00 @ 16.50
Old Rails, according to quality cash,	19,00 @ 20,00
CAR WHEEL AND MALLEABLE	E.
Hanging Rock	33.50 @ 35.00 28.00 @ 30 00
ORE,	
*** * * ** *** (WFkk)	

#### RICHMOND.

					me ama	
nace A	zent, F	tichmo	ond,	Va., w	rites as	fol-
lows un	der dat	te of	April	20: 1	his ma	rket
shows i	nereas	ad du	llnes	s for t	he past	few
days.	Prices,	howe	ver, e	are uncl	hanged	:
Va. Cold-	blast Ch	arcoal	l, Cold	short	\$20,00 @	24.00
Va.	44	6.6	Neu	tral	28.00 (	29.00
Va. Warr	n-blast	64	Cole	l-short	19.00 @	32.00
Anthraci	te, Ame	rican 8	scotch		a3.00 (6	24.00
6.6	No. 1				19.50 @	20.50
46					. 18,50 @	
86					. 17.50 @	
9.5	Mottl	ed			15.00 @	15.50
Coke, (V	Vest Vir	ginia) l	No. 1		91.00 @	
44	86	- N	0 0		an on a	

Old Rails	16.00 @ 17.0
Wrought Scrap No. 1	18.00 @ 10.0
Cast " (machinery)	16.00 (d) 17.0
Richmond Refined Bar Iron	2.00 @ 21-
Horse Shoes per keg	4.50 @ 4.
Mule " "	@ 5.
Old Dominion Nails, Standard Size, 🦞	
Freight to New York and Philadel	phia by sa
\$1.75 per ton of 2240 D.	

#### ST. LOUIS.

Specially reported by Messrs. Spooner & OLLINS, Iron Commission Merchants, 217 orth Third street, St. Louis, under date of April 26: Pig Iron has been in fair demand the past week, but prices still remain very low. We have a constant supply of cheap Southern Irons that seem to have become the standard upon which our other furnaces who make a superior quality of Iron, are obliged to base their prices. We see nothing brighter for the present. Old Rails are cheap and very little in demand.

	No. 1.	No. 2.	Mill.	White and M't'ld	
M'souri Stone Coal					
Missouri Charcoal			18.50		
Tenn. Charcoal	22.50	20.50	18.50		White
South. Coke, soft				tled.	
and strong Hang, Rock Char-	23.00	31.00	19.00	18,00	\$18.00
Hang. Rock Char-	25.00	24.00	23.00	******	
coal, Cold-short.	23.00	*****	*****		
	Extra		Extra		
		No. z	No. I	No. 1.	-
	I. M.		Na-	Na-	e, e
Hang, Rock Coke,		Ore.	tive.	tive.	Alic Am Scot
equal to Scotch.	25.00	24.00	24.50	23.50	23.00
	Extra		B		
	No. 1.	No. 1.	No. z.	No. 2.	
West Va. Coke	23,50	23.00	22,00	21.50	

West Va. Coke No. 1. No. 1. No. 1. 23.50	No. 2. 21.50
COLD-BLAST CHARCOAL-All Nur	nbers.
Hanging Rock 4 mos.	\$25.00 @ 38.00
Tennessee mos.	26.00 @ 30.00
Kentucky mos.	26.00 @ 30.00
Missouri 4 mos.	26,00 @ 30.00
Georgia mos.	26.00 @ 30.00
Alabama mos.	26,00 @ 30,00
Assorted Bar Iron	2.00 @ 2.10
No. 1 Railroad 100	.90 @ 1.00
Heavy Cast Scrap "	.65 @
Light " "	.55 @
Old Rails mos.	20.00 @ 20.50
Old Car Wheels mos.	16.00 @ 17.00

#### LOUISVILLE.

Messrs. Geo. H. Hull & Co., under date of April 29, write us as follows: The demand for both Foundry and Mill grades has largely increased during the past week, but with no effect whatever upon prices. Four months allowed on quotations below:

nowed on quotations below.	
FOUNDRY IRONS.	
To. 1 Hanging Rock, Charcoal\$21.50 @ 22.50	1
O. 1 Southern, Charcoal 18.50 @ 19.00	r
io. r Hanging Rock, Stonecoal and	t
Coke	t
Coke	i
No. 2 " 17.50 @ 18.00 American Scotch" 19.00 @ 20.00	8
Silver Gray 16,00 @ 17.60	li
MILL IRONS.	1
No. 1 Charcoal, Cold-short and Neut'l. 17.00 @ 17.50 No. 1 Stonecoal and Coke, Cold-short	1
and Neutral	i

CAR WHEEL AND MALLEABLE IRONS. 

 Hanging Rock, Cold-blast
 34.00 @

 Alabama and Georgia, Cold-blast
 25.00 @

 Kentucky, Cold-blast
 25.00 @

Messrs. W. B. BELKNAP & Co., Iron and Messrs. W. B. Belknap & Co., Iron and Steel Merchants, Louisville, Ky., under date of April 29, report: Trade is rather quiet, a very early spring having already precipitated the usual dullness of May and June. The custom of buying for immediate wants only has, however, been so long pursued that there is little or no pressure from heavy that there is little or no pressure from heavy stocks in the hands of any one, so after all there may be claimed a fair jobbing demand, made up of a great variety of small orders. Iron and Nails are both weak, and large sales could not be effected except at concessions. While Pig continues to decline it is useless to expect firmness in the manufactured product. Many mills talk of shutting down shortly for the summer. The promise "not to start up till better times" has become too trite to attract attention. The maturity of obligations has generally more to do with starting up than any prospect of permanent revival in business.

#### CHICAGO.

HARPER & Co. (successors to L. R. HULL & Co.), 95 Washington street, under date of April 29, report as follows: There is no change to note in Pig Iron. All grades are in good supply. Demand has been light, with little prospect of improve-ment. Quotations unchanged.

ALLCH ALU.	Lucennin	7.8.67	anc	110611	Rea				
	LAKE	SUP	ERIO	R CH	LARCO	LAC			
Lake Su	No.	3					23.00 22.00 22.00 22.00	60	23.0
					TCH.				
Mahonii	Valley.	No.	2				82.50	8	
Shawne	o, No. 2						99.00	0	
Jackson	County,	)hio.	No.	X			23.00	a	
Silvery (	Bray		240.				21.00	99	

#### BALTIMORE.

Mr. W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, reports us the following prices, under date of April 29, 1878: There is an improved de-mand both from dealers and consumers, and the market exhibits more tone without showing any quotable change in prices:

and any december curuse in b				
AMERICAN REFINED BAR IRON	8.			
I to 6 wide by 1/4 to I thick	1.95	0	2	*
from 1/4 to 2 inclusive	1.95 3 234	63	2	
Hoop iron, 11/4 wide and upward "	3	63	234	co.
Band Iron, from 11/4 to 4 in. wide "	234	63	3	4
Horse-shoe Iron 1/4 to 1 wide by 3/4	-/4	-	3	*
to % thick	286	6	.1	CA
Norway Nail Rods	336	25	377	7
Black Diamond Cast Steel, Flats, Squares and Octagon, ordinary		_		•
sixes	14% 8	a.	1.0	4
Machinery Steel "	8	a	0	4
Cast Spring Steel"	+86	6	ă	ä
Homogeneous Steel Plate "	8 736 836	26	0	5
Perkins' Horse shoes, W keg of roo lbs. "Mule shoes		8	2. 25	236
R. R. Spikes	N/A	60	2	12
Common Horse Nails 9 2	140	3	18	4

Baltimore	Char	coal	Pig							,		28,00	0	29.00
Virginia												22 00	m.	20.00
Anthracit	e No.	I										10.00	0	21.00
9.0	No.	2										18.00	0	10.00
4.6	No.	2										22.00	a	+ B 00
	Mot	tled	and	l V	V)	zí	te					14.00	a	15.00
Charcoal,	C. B.	19100										50.00	a.	CC OW
4.0	0.0	Bill	ets.									\$5.00	0	87.00
Refined I	Bloom	8						0 1	 			45,00	0	50,00
					_									

#### Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

LONDON, ENG., April 16th, 1878. THE GENERAL ASPECT

of matters is in the main unaltered, and neither politics nor commerce affords one any sources of exciting news. Politically, we still remain in a state of tension and uncertainty, for although we are all crying and preaching peace, we are, nevertheless, keeping our powder amazingly dry, and leaving the result to Providence. Perhaps it is hardly fair to Providence that the matter should be represented in that light, for, to take a rather lower view, it seems pretty take a rather lower view, it seems pretty clear that Gortschakoff has the settlement of he whole thing in his own hands, and that it needs but a couple of words or so from his tongue to set all Europe ablaze. That such a dire result may not ensue all men must most fervently hope, yet that that may be the dismal finale of all these weary months of diplomacy we cannot fail to see diplomacy we cannot fail to see.

#### IT IS QUITE CERTAIN

now, as it has been any time these six months, that this incertitude is exceedingly prejudicial to the revival of our export trade, and that as soon as peace shall become an assured fact so soon will a material revival assured fact so soon will a material revival of manufacturing prosperity be brought about. People are actually grumbling quite as much as they have ever done, but then we know the average Britisher will grumble; yet it seems tolerably patent that some of them are doing a heavy stroke of business, if we may judge from

THE EXPORT RETURNS.

as set forth by the Board of Trade and published in your last week's issue. If your readers will be at the trouble to analyze these statistics, they will readily ascertain that in many important classes of manufactures there has been a really considerable increase of foreign shipments, while at the same time there is no reason whatever for supposing that the home market has been less productive of orders than heretofore. The quantity of iron and steel sent out of the country during the month of March was and Neutral and Coke, Cold-short 16.50 @ 17.50 | 188,761 tons, as against 176,948 tons in March, 1877, so that in these respects there white and Mottled, Cold-short and Neutral 16.00 @ 16.50 | 17.00 @ 16.50 | 18.877, so that in these respects there has been a valuable increase, albeit the selling prices have not been augmented in thing like has been a valuable increase, albeit the selling prices have not been augmented in anything like a corresponding degree. In general hardwares, too, there has been a growth of 1 per cent. on the month, and over 5 per cent. on the three months constituting the first quarter of the year. For the quarter the increase in iron and steel amounts to about 9 per cent.—steam engines having grown 23 per cent. in the month and 12 per cent. in the quarter; small arms, 7% per cent. cent. in the quarter; small arms, 7½ per cent. in the quarter and 16 per cent. in the month in the quarter and 16 per cent. in the month; ammunition, 24 per cent. in the three months and 119 per cent. in the month of March; saddlery, 18 per cent. and 15 per cent. respectively; plate and plated wares, 13 and 17 per cent., and so on in other respects. In the United States the month's transactions were: Wrought copper, 127 cwts.; hardware and cutlery, £24,541; pig iron, 1761 tons; unwrought tin, 1203 cwts.; hoops, sheets, armor or boiler plates, 67 tons; cast or wrought iron, 144 tons; railroad of all sorts, 106 tons; old iron, 349 tons; bars, angles. wrought iron, 144 tons; railroad of all sorts, 106 tons; old iron, 349 tons; bars, angles, bolts or rods, 504 tons; unwrought steel, 389 tons; tin plates, 8417 tons; machinery, other than steam engines, £13,746; lead in pig, sheets, &c., £576, and iron rails, 31 tons; beside sundry miscellaneous articles not specifically enumerated. Thus I contend that

WITH THESE FACTS before us we are bound to perceive that business is with difficulty kept in a state of repression by the political imbroglio, and that with any more settled state of things in that respect we are almost certain to feel a bound forward toward a marked revival. Whether this circumstance had any weight with those who met at last week's

#### QUARTERLY MEETINGS,

or otherwise, it is not for me to say, but the fact remains to be recorded that in no instance was there any change in the official quotations of the leading ironmasters. In quotations of the leading ironmasters. In South Staffordshire the two principal gather-ings were well attended and a considerable amount of business was transacted, especially in best brands, such as those of Lord Dudin best brands, such as those of Lord Dud-ley (whose Round Oaks Works are now on full time), Messrs. Barrows & Son, Messrs. Thorneycroft, Lee & Bolton, Brown & Freers and other noted houses. These classes of branded iron remained unchanged on the basis of £8. 10/ for best bars, except the Earl of Dudley, who as wand comon the basis of £8. 10/ for best bars, except the Earl of Dudley, who, as usual, com-manded 12/6 extra. It was stated that there are only 46 out of a total of 147 fur-naces in blast in South Staffordshire, and that many of the smaller finished iron works are badly engaged. For nail strip (21 inches wide) one order for 500 tons was given out at £6. 5/ per ton. For bridge girders the London and Northwestern Railway Company gave out a specification, needing 2500 tons of iron, and in another instance an order of iron, and in another instance an order was secured for 1,00 tons of gasometer plates. While the Change meeting at Birplates. While the Change meeting at Birmingham was in session a notice was posted of the death of Mr. W. H. Dawes, a well-known ironmaster of the Black Country, Mr. Dawes was 74 years of age, and was not only a leading Staffordshire manufacturer, but was also a part owner of the well-known but was also a part owner of the well-known Milton & Elsecar Iron Works, near Sheffield.

colnshire. He was greatly respected, and had long been known by the title of the "gentleman ironmaster" in token of his universal urbanity and kindness.

#### ENGLISH AND AMERICAN TUBES.

This subject forms the substance of a ver This subject forms the substance of a very interesting and important letter addressed by Mr. George Westinghouse, Jr., to the Ironmonger, which had quoted what now appears to have been a private letter from that gentleman which had appeared in a Pittsburgh contemporary of yours. The following is Mr. Westinghouse's letter and its accompanying somewarthing list.

companying comparative list:
"Sir: My attention has been called by
the representative of a large manufacturer of wrought-iron pipes to an article in your paper of April 8th, containing an extract from a private letter not intended for publication. The article is calculated to throw doubt on my statement, and I therefore ask doubt on my statement, and I therefore ask you to insert this letter and the inclosed table of English and American price lists with the appended notes. Up to the date of the letter from which the extract was made I had not been offered more than 40 per cent. discount from the list, making the price for 34 steam pipe 7 2-10 cents, but have since been offered a larger discount, bringing the price considerably below that have since been offered a larger discount, bringing the price considerably below that figure. The representative of the tube manufacturer above referred to quite agreed with me as to the almost worthless character of English-made gas pipes, but claimed his company made steam pipes that were tested to 700 pounds per square inch, and gave me the list of prices in the inclosed table and the amount of discount he would allow, this discount being 2½ per cent. less than offered by the American manufacturer.

"A comparison of the prices and discounts

"A comparison of the prices and discounts in the lists will show you that I might have written in much stronger terms, especially as regards all pipe above I inch in diameter.

"Respectfully yours,
"GEO. WESTINGHOUSE, JR."
The list inclosed by Mr. Westinghouse is

English	and	American	Iron Prices	TubesComparative

	Engl	ish Lis	st.	American List.							
Descrip-	Internal Diam.	Price per Foot in Pence.	Price per Ft. in Cts.	Descrip- tion.	Internal Diam,	Price per Ft. in Cts.	Price per Foot in Pence.				
Butt Welded.	Inch. % % % % % % % % % % % % % % % % % % %	2 31/2 3 41/4 6 8 111 14 18 21 30 39 48 54 66 84	.04 .05 .06 .08 ½ .12 .16 .22 .28 .36 .42 .60 .78 .96 \$1.08	Lap Welted. Welted.	Inch 36 36 36 37 12 2 2 3 3 3 4 4	.06 .06 .07 .07 .09 .12½ .23 .31 .46	3 3 3 4 4 6 6 11 15 2 3 3 4 4 6 3 4 6 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				

In a foot note to this the editor of the Ironmonger expresses his gratification at having been the means of eliciting the true facts of the matter, although he expresses some regret that they are so stated. The comparison certainly seems a remarkable one, and is sure to be the source of some more or less vigorous correspondence on the more or less vigorous correspondence on the

#### SCOTCH PIG IRON

was very quiet during the whole of last week, but there was no particular recession of prices in any direction. There are 89 furnaces blowing and 170,842 tons in Connal's Glasgow stores—an increase for the week of 385 tons. The total shipments to date have been 96,926 tons, 5670 below the aggregate of the corresponding period of last year.

last year.

Writing from Glasgow on April 12 James
Watson & Co. said: "The market for Scotch
pig iron warrants has been remarkably
steady, with a limited business done between
51/, 51/1½ and 51/, cash, closing sellers at
51/, buyers very near. The demand for
makers' iron is quiet with almost no alteration in price. Shipments last week were
7448 tons, against 9071 tons in the corresponding week of 1877." We quote:
No. 1. No. 3.

G. M. B., at G	Hasgow	Fxxx	* *		 		.51/3	
Gartsherrie,	64				 	 	- 58/3	
Coltness,	6.6				 	 	.63/	
Summerlee,	6.6				 	 	57/9	
Langloan,	46				 	 	.60/	
Carnbroe,	6.6				 	 	-53/	
Calder, at Po								
Glengarnock.	at Arc	iros	188	III.	 	 	59/	
Eglinton.	6.6						32/3	
Dalmellingto	n. 44						.52/3	
Shotts, at Le								
Kinneil, at Be	ness.						.54/	
							6 D	

The reports of John E. Swan & Bros. and Wm. Colvin & Co. are in similar terms.

The Scotch malleable iron trade is dull, with smaller foreign shipments. In last week's consignments from the Clyde were included £3500 of castings, mostly for India; £2700 of machinery, £1200 of tubes, £2200 of galvanized iron and £2500 miscelleneous iron.

with smaller foreign shipments. In last week's consignments from the Clyde were included £3500 of castings, mostly for India; £2700 of machinery, £1200 of tubes, £2200 of galvanized iron and £2500 miscellaneous iron.

THE TRADE OF MIDDLESBOROUGH is thus officially reported upon by the Chamber of Commerce there: "The number of furnaces in operation at the end of the month was 69, 9 having been blown out in accordance with the resolution of the Ironmasters' Association to limit the production. Of the 90 furnaces erected, 21 were therefore standing, compared with 87 built and 13 inoperative at the end of March hast year. The output of Cleveland iron was 117,552 tons, or 7475 tons increase; considerable quantity of hematite and Spiegeleisen produced. Of the stocks at the end of the month, makers held 195,455 tons, or 2978 tons increase; consal's and other stores, 60,025 tons, or 7475 tons increase; total increase in the district during the month, 10,986 tons. The shipments from the port were 61,386 tons as compared with \$57, thus showing increases of 1873, thus showing increases of 1873 tons increase; total increase of the first three was a compared with \$57, thus showing increases of 1873 ingles and 3374 tons respectively. Last 9689 tons and 3374 tons res

month, of the 26,861 tons sent to foreign parts, 9040 tons went to Germany, 5655 tons to Holland, 5420 tons to France, 3370 tons to Belgium, 1036 tons to Portugal, 1000 tons to Italy, and the remainder to Denmark, Sweden and Norway, Russia, and Spain; and of the coastwise shipments Scotland took 27,316 coastwise shipments Scotland took 27,316 tons. Sales of pig iron during the month have been more numerous than for several months previously; indeed about the middle of the month business was very active. Makers reduced the quotations which they had been asking since November, and this had the effect of inducing merchants and consumers to buy largely. Nine furnaces have been blown out, and wages have been reduced at the blast furnaces by 10 per cent. during the month. The prices prevailing at 31st March are given in the quarterly report of the Chamber.

"The exports of manufactured iron and

of the Chamber.

"The exports of manufactured iron and steel from Middlesborough during the month were \$789\$ tons, compared with 13,828 tons in February, or a decrease of 5039 tons. Of the 981 sent foreign or colonial, 720 tons were shipped to Australia and 231 tons to Holland. The plate makers have been well employed, and have received a fair share of orders for ship and boiler plates, the former for the local and Clyde shipbuilding yards, and the latter chiefly for the Midland counties. Makers of special qualities of plates ties. Makers of special qualities of plates have also had plenty to do, and the pro-ducers of angles have turned out a fair quantity. For rails, ordinary bars, puddled bars, &c., the demand has been exceedingly slack. At the steel works operations have been very briskly carried on. The iron founders have been doing rather better within the last few weeks, but the works are everywhere badly employed. Engineers have been fairly well off, as have also the manufacturers of cut nails and wire. Galvanizers have found business rather slack. The tube trade has been regularly occupied, and sales on Continental account have been more numerous. Iron shipbuilders have not received so many new orders lately, but have plenty of work in hand, and are likely have plenty of work in hand, and are likely to keep their yards regularly going for some time to come on old contracts. The value of the exports of all goods from Middlesborough, exclusive of coal and coke, but including all the iron and steel, was: March, 1876, £72,638; March, 1877, £69,137; increase for present year, £3501."

#### THE TRADES OF SHEFFIELD

cannot be said to have changed in any material degree or in any particular branch. terial degree or in any particular branch. Nearly everybody is grumbling with as much vehemence as ever, but not a few gentlemen will admit, if "crowded," that they are doing "middling" so far as the quantity of work is concerned, but that they are not "getting anything" out of it. Of the iron branches I hardly need speak at any length, for it is a well-recognized fact that none of the producers of common iron are doing any business worth naming, except in wire billets and common bars, the latter at about £5. 15, the ton. All the wire manufacturers are busy, and some of them have rather more orders just now than they can get out of hand. Cammell's and Brown's are doing a little in armor plates, and the latter coma little in armor plates, and the latter con-cern is producing a heavy tonnage of boiler plates, for which, as well as for steel ship plates, they are experiencing such a strong call that their mills cannot run fast enough call that their mills cannot run fast enough. That said, little further comment is needed. All the subsidiary shops are slack, and Brown's rail mill has not been "going" for nearly two years past. When this house now has rail commissions of ordinary market rates they get the rails rolled outside—by Steel, Tozer & Hampton generally. When they get their own price they do the work themselves. Most of the more prominent cast-steel manufacturers are fairly busy; and a few old houses, such as Jessop's, Sanderson's, Vickers', Firth's, Hobson's and Wardlow's, are sending nice lots of rod, tool and sheet steel to your ports. There is a Wardlow's, are sending nice lots of rod, tool and sheet steel to your ports. There is a constantly growing call for Siemens springs, sheets and rods, this material having recently been found more tractable and reliable than Bessemer, while it is, at the same time, much cheaper than the crucible steel. The file and saw trades are very dull, and there is a general complaint as to the largeness of stocks. The larger cuttery houses

make. In Birmingham yesterday large parcels of coke were vainly offered at 15/% box, f. o. b. Liverpool, the American buyers being very cautious. Spetter.—Flat, £18. 5/@ £18. 7/6 for ordinary brands. Lead.—Dull. English pig, £17. 5/@ £17. 7/6. Soft Spanish, without silver, £17. Quicksilver.—£7 % bottle. Antimony.—English, £49 @ £50. Australian, £48 @ £49."

The Mining Journal remarks: "Copper.—The state of this metal remains unimproved, and it must be evident to sellers that the

and it must be evident to sellers that the concessions they have lately submitted to were judicious, and not made prematurely or unnecessarily. For even now at the reduced quotations the demand is inadequate duced quotations the demand is inadequate to the supply, and if no reduction had taken place to secure what business could then be procured the market would now be in a much worse condition than it really is, and £162. 10/ would not have been attainable for named and best brands of Chili. By making these wice and timely expressives held. ing these wise and timely concessions holders have thus been enabled to relieve themers have thus been enabled to relieve them-selves of some portion of their superfluous stocks and consequently lightened their load, and statistics are, perhaps, less favorable than would otherwise have been the case, not but what stocks are still excessive, and they will probably bring the price down be-low present rates. Although the price is comparatively low, yet no one is struck with astonishment or possesses a sufficient amount comparatively low, yet no one is struck with astonishment or possesses a sufficient amount of courage to act upon an apparent advantage which low prices would seem to offer, and no wonder when the tendency continues decidedly downward, a fact drawing to the fulfillment of Rogers' prediction of £60 for Chili bars. Never were buyers more reluctant to exceed their requirements than at the present time and they are firm against all present time, and they are firm against all temptations to depart from their resolute determination.

Belgian iron in London is thus reported upon in the *fronmonger* by Oscar Moenich & Co., April 12th: "Some slight demand has set in this week, but a concession of 1/@2/has had to be made on the price of £5./10, set in this week, but a concession of 1/@2/has had to be made on the price of £5. /10, net free Thames for common bars and nail rods by those makers who have to compete for orders. In wire nails some fair transactions have taken place, and best makes, such as Rudolph Quitmann's, of Altena, have obtained 3d. per cwt. more than a fortnight ago. Bright iron wire is neglected, but some orders for rope wire have been booked at £13 per ton free Thames. Alexander Sohier & Co., of Monceau-on-Sambre, are increasing their works, in which high class bars and nail rods are made, very considerably; their annual production from next June will amount to 30,000 tons, which exceeds that of any other Belgian, and, we are told, English works, in these two specialties. Our makers are urging the Belgian government to extend the canal to Charleroi, and thus to enable them to ship their iron direct from the works to London; every influence is brought to bear in this matter, and it is asserted that after a comparatively small outlay the manufacturers will be better able to compete than ever. Some specifications of heavy irongils for the English market have been subthan ever. Some specifications of heavy iron rails for the English market have been sub-

rails for the English market have been sub-mitted to our makers, but their quotations were from 8/ to 10/ above English prices." As to tin plates in Liverpool, Messrs. Rob-ert Crooks & Co. report: "Tin and terne plates are very depressed generally, and makers as a rule are willing to accept fur-ther reductions. In some few cases, how-ever, advances have been wanted, no doubt in the hope of an agreement being made in the hope of an agreement being made for working short time. Quotations are: Charcoal tims, 18/@20/; ditto ternes, 17/@19/; coke tins, 15/@16/6; ditto ternes, 14/9@16/."

#### Cheap Steel Rails.

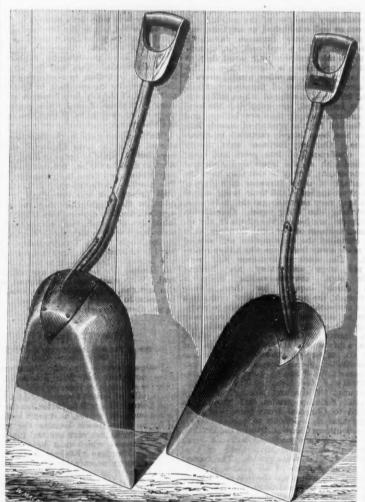
The Colliery Guardian says: We wish to reach a short social sermon from the text of the £6. 10/per ton tender for steel rails, delivered by the Messrs. Bolckow, Vaughan & Co., Limited. It is clear that this great Cleveland firm could never have attained this result had not its management been disconnected by the country of th tinguished by ability and experience of the highest order. An intimate knowledge of Continental industry, a careful utilization of the cheapest raw materials, an introduction of the best and most approved mechanical appliances, and a resolute determination to representation of the continuous of the continuous continuous forces. and last being for the United States.

STAFFORDSHIRE AND BIRMINGHAM
have been so fully touched upon in a preceding paragraph that I shall not go over the ground again here, further than to remark that in most of the hardware branches at "Brum" there is a moderately good quantity of work in course of execution, with inquiries in circulation which lead to the Cleveland coal miners and iron makers had not enabled the company to obtain cheaper supplies of raw material. To enable the manufacturing industries of Great Britain of every description to recover and regain its old supremacy, it must produce at a cheap rate, and this cheap production can only be from Rhymney for Gefle and 668 to Sundswally, 900 tons of rails from Dowlais for Gothenburg and a small lot of rails for Bombay, 300 tons of bars from Dowlais for Amsterdam. The coal market is steady.

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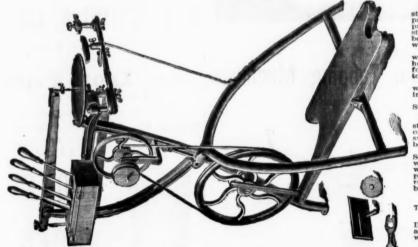
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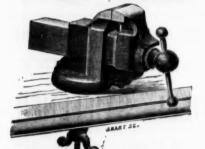
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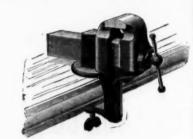


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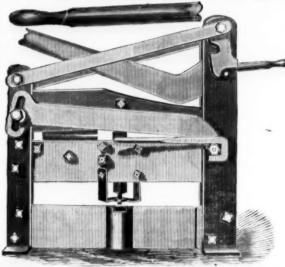
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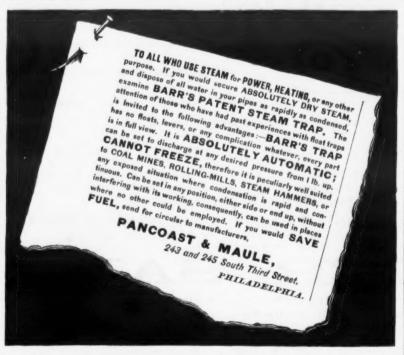
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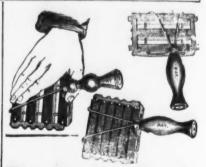
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Dunne P. K., 182 Fulton, N. Y.  Quackenbush, Townsend & Co., 59 Reade, N. Y.  Van Wagoner & Williams, 82 Beekman, N. Y.
Van Wagoner & Williams, 82 Beekman, N. Y.  Door Stops and Folders, Sprigler & Co., Pittabu gh, Pa  Drill Chucus. Manufacturers of, Cushman A. F. Hartford, Conn. Lambertville iron Works, Lambertville, N. J.  Britling Mackings, Maker of,
Lambertville iron Works. Lambertville, N. J.  Driffing Mackines. Ackers of.  Rickford H., Cinclinati, O.  Thorne. DeHaven. & Co., Philadelphis
Thorne, Deliaven. & Co., Philiadelphia.  Brop Forgings.  Boker Herman & Co., 101 and 103 Duane. N. Y  Rose Wm. & Bros., West Philadelphia, Pa.,  Drop Presses.
Bros Presses.  Beecher & Peck, New Haven, Conn.  Refer Teals. Makers of.
The D. R. Barton Tool Co., Rochester, N. Y Doscher M., 4 and 6 Gold, N. Y Elevating and Conveying Machines.
Fitshogh J. R., 4228 Market, Phila,  Elevators, Makers of.  Crane Bros. Mfg Co., Chicago, Ill
Boker Herinann & Co., 101 and 103 Duams, N. Y. Rose Wm. & Bros., West Philadelphia, Pa. Drop Presser, beecher & Peck, New Haven, Conn. Beecher & Peck, New Haven, Conn. Doccher M., Sand Gold, N. Y. Doccher M., Sand Gold, N. Y. Doccher M., Sand Gold, N. Y. Elevating and Conveying Machines. Fitshigh J. E., 422 Market, Phila. Elevator Book Mix Co., Chicago, Ill. Lanc & Bodley Co., Chicago, Ill. Lanc & Bodley Co., Chicago, Ill. Mason Yothey M. & Co., Providence R. I. Skykes & Parrish, Philadelphia, Pa. Blevator Huckets.
Rivet Bucket Co., Chicago, Ill
Mason Volney W. & Co., Providence R. I. Stokes & Parrish, Philadelphia, Pa.  Elevater Ruckets. Rivet Bucket Co., Chicago, Ill. Rowian I F. F. Brooklyn, N. Y.  Emery Wheels. Lehigh Valley Emery Wheel Co., Weissport, Pa.  Engineers, Machiwisis. etc. Southern States Coal, Iron & Land Co., South Pit- burg, Tenn.
Todd Joseph C., 10 Bare:ay, N. Y.  Brown, Calorie,
Bruines. Steam. Makers or.  Blymer Mfg. Co., Cincinnati, O
Southern States Coal, Iron & Land Co., South Pit burg, Tend Joseph C., 10 Bare.ay, N. Y.  Brod Joseph C., 10 Bare.ay, N. Y.  Brown Caloric Engine Co., 51 Lewis, N. Y.  Saulnes, Markers or Blymer Mfg. Co. Intinati, O.  Blymer Mfg. Co., Kenstucton, Philaselle, States Co., Fitchburg, Mass.  Lovegrove & Co., Philadelphis, Pa.  Parne B. W. & Sons, Corning, N. Y.  Shapley & Wells, Bingbamton, N. Y.
with the state of

1	Engravers. Collins Geo. B., 83 Reade, N. Y	KI
ĺ	Expert Factors.	
ı	Jennings S. H., Deep River, Conn	La D H
1	Francets, Brass, Makers of. McNab & Harlin Mfg. Co., 56 Juhn, N. Y	La
1	Faucets, Self-Measuring Makers of. Enterprise Mfg. Co., of Pa., Phila, and N. Y 29	
1	Feed Water Heater and Purifier.	La D
1	Davis J. B. Hartford, Conn	Ji Si
1	Feiting and Wadding. Bacon, Chas. N., Winchester, Mass	La
1	Files, Importers or	U
I	Files, Importers of Carlot State Carlot Stat	M
1	Frasse Peter A. & Co. & Fulton, N. Y	Le
I	Moss F. W., 80 John, N. Y. 84 Sanderson B:os. & Co., 16 Cliff, N. Y. 84	Le
ł	Files, Manufacturers or.	Le
ı	Augurn File Works, 89 Chambers, N. Y	
	Disston Henry & Sons, Phila	DR
l	Draper C. f. & Co., Sing Sing, N. Y	8
1	Piles, Manufacsurers of American File Co. Pawtucket, R. I.   8	DY
1	McCaffrey & Bro., 1732 and 1734 N. 4th, Phila	Me
l	Paul Chas. B. Williamsburch, N. Y.  Fire Brick, Makers o. Borguer & O'Brien, Philadelphia, Pa	B
ı	Borgner & O'Brien, Philadelphia, Pa	P
Į	Dyke, St., Brookivn N. Y.	T
Ì	Gardner, Stuart & Co., Pittsburgh	Y
I	Hall A. & Sons, Perth Amboy, N. J	Ma
Ì	Maurer Henry, 418 East 25d, N. Y	Mis
1	Newton & Co., Albany, N. Y	B
l	Valentine M. D. & Bro., Woodbridge, N. J	F
I	Watson John R. Perth Amboy, N. J	P
1	Flint and Emery Paper and Cloth, Baeder, Adamson & Co. 730 Market, Phila	(Win
I	Flower Pot Stands.	MI
1	Flower Pot Stands. Baruum E. T., Detro t, Mich	
l	The American Machine Co., Philadelphia	Me
1	Fluting Machines. The American Machine Co., Philadelphia	Me
ı	Keystone Portable Forge Co., Philadelphia40	W.
1	Brown T. J., Rockwood, Tenn	Me
	Foundry Factors.	C
	Foundry Facings. Paxson J. W. & Co., 514 Beach, Phila. 5 Whitehead Bros., 517 W. 15th, N. Y. 4	GP
1	Furnaces Makers of	I P
1	Bichmond & Potts, 119 S. Fourth, Phila Pa 5	8
J	Furniture aprings. Cary & Moen, 234 W. 29th, N. Y	Me
1	Lefferts Marshall Jr. 90 Bookman N. V.	H
1	Grain Cradles.	Me
1	Grain Cradies. Grant Fan Mill and Cradie Co., Melrose, Rensselaer. Co. N. Y	Me
J	Grindstones,	Me
1	Grindstenes.	
1	Wood Walter R., 283 and 285 Front, N. V	T
1	Worthington & Sons, North Amherst, O	Mi
1	Windmuller Louis & Roelker 20 Reads N V 20	791
ł	Guppowder, Makers of	MI
ĺ	Simpowder, Makers of, Kneeland F. L. (Dupont) 70 Wall, N. Y	199
I		B
١	Granam & Haines, 113 Champers, N. Y 36	Me
ł	Samuel S. L., 57 Cedar, N. Y.	1 0
I		O H
I	Brower John I & Son 288 Greenwich N 3	IM e
I	Hardware Dealers. Brower John I. & Son, 288 Greenwich, N. Y	Na
١		Z
ı	Boker Hermann & Co., 101 Duane, N. Y	Nn C
ł	Hardware Imperters.  Boker Hermann & Co. 101 Duane, N. Y	Ni
ı	Hardware Manufacturers	J
1	American Spiral Spring Butt Co., 82 Beckman, N. Y42	NI
1	Coulter, Flagler & Co., 87 Chambers, N. Y	Z
I	Enterprise Mtg. Co., Phila	NI
1	Hart, Bilven & Mead Mfg. Co., 107 Chambers, N. Y. 19 Humason & Beckley Mfg. Co. 100 Chambers, N. Y. 19	
1	Lloyd, Supplee & Walton, 645 Market St. Phila. Pa., 38	Ne
I	Windmulier Louis & Roelker 20 Reade N. Y. 20 Hardware Manufacturpers. American Sulrai Spring But Co 22 Beckman, N. Y. 42 Clark & Co., Buffalo, N. Y. 58 Coulter, Flagler & Co., 87 Chambers, N. Y. 58 Coulter, Flagler & Co., 87 Chambers, N. Y. 59 Hark, Bilven & Mead Mfg. Co 107 Chambers, N. Y. 79 Humason & Beckley Mfg. Co 107 Chambers, N. Y. 79 Humason & Beckley Mfg. Co. 109 Chambers, N. Y. 8 Lloyd, Supplee & Walton, 65 Market St. Phila Pa. 36 Miller s Falls Mfg. Co., 74 Chambers, N. Y. 59 Pratt & Co., Buffalo, N. Y. 51 Russell & Erwin Mfg. Co., New York 10 Sheparu Hardware Co., Buffalo, N. Y. 8 Stanley Works, New Bittain, Conn. 18 Union Mfg. Co. 90 Chambers, N. Y. 7 Van Wagoner & Williams 82 Beckman, N. Y. 42 Hardware Specialities.	No
I	Sheparu Hardware Co., Buffalo, N. Y	Nu
l	Union Mfg. Co. 99 Chambers, N. Y	
Ì	Van Wagoner & Williams 82 Beekman, N. Y42	Nu
1	Sterling & Herrick, 7 and 9 Cliff. N. Y	L
١	Shepard Sidney & Co., Buffalo, N. Y	H
1	Hardware, (Wagon) Covert E. & J. C., Farmer Village, N. Y	8
ı	Harness an ps. Covert Mfg. Co., Troy, N. Y	S
ı	Hinges.	91
1	Hinges. Lewis, Oliver & Philips, Pittsburgh, Pa. 12 Stanley Works, New Britain, Conn. 18	
1	Hog Ringers.	Oi B
١	Hog Ringers. Chambers, Bering & Quinlan, Decatur, Ill	OI
	Crane Bros. Mfg. Co . Chicago, Ill	oi
1	Mundy J. S., Newark, N J	Pa
	Hoisting Machines.  Harrington Edwin & Son, Philadelphia, Pa	8
1	Hooks (Cotton & Bale.)	
	Hooks (Cotton & Bale.) New York Handle & Mailet Werks, 456 E. Houston36	Pa
	Horse Nails, Makers of Ausable Horse Nail Co. 25 Chambers, N. Y	Pa
	Globe Nall Co., Boston, Mass 35	Pa
	P Horse Nati Co., Cleveland, O	1 1
1	Northwestern Horse Nall Co., Chicago, Ili	8
	Champion Steel Horse Nail Co., Appleton, Wis.	Pe
	Horse Shoes, Makers of	Pe
	Horse Stors, Makers of .  Boston Rolling Mills, 17 Batterymarch, Boston 4  Burden Iron Works. Troy, N. Y	I Pi
	Horse Shees, Makers of. Boston Bolling Mills, 17 Batterymarch, Boston. 4 Burden Iron Works, Troy, N. Y Rhode Island Horse Shee Co., Providence, K. 1., 25 Schoenberger & Co., Pittsburgh, Ps. 4	Pi
	Hydrants. &c.	Pi
	Hydrants. &c. McLean John, 300 Monroe, N. Y	PI
	Hydraulic Jacks. Dudgeon Richard. 24 Columbia. N. Y	N
	Lyon E. & Co., 470 Grand, N. Y	Pi
	Insurance, Boiler. Hartford Steam Boller Inspection and Insurance Co. 41	L
	Boynton Geo. A., 70 Wall, N. V	Pi
	Iron Brokers.	B
	Hatry A. G., Pittsburgh, Pa	8
	Oniney John W. 48 William N. V.	1
	Iron Commission Merchants.	Pi
	Iron. Charreal. Warm or Cold Blass, Quincy John W. 98 William. N. Y. 4 Iron Commission Werchants. Adams Hugh W. 58 Plue, N. 5 Lowe b. 4. Collins. M. Louis Mo. 66	Pi
	Adams Rugi	Pe
	Williamson James & Co., 69 Wall. N. Y 4	Pe
	Abeel Brothers, 190 South, N. Y.	Pe
	Borden & Lovell, 70 and 71 West, N. Y.	Pr
	Hueratel G. 90 Market Slip, N. Y.	T
	Harrison & Cilloon, 558 to 562 Water, N. Y.	Pr
	Jackson & Chase, 30 and 208 Franklin, N. Y	Pu
	Oguen Wallace, %5, 87.59 and 91 Elm, N. Y	F
	Pullman J. Wesley, Philadelphia, Pa	P
	Richards D. W & Co., 22 Mangin St., N. V.	P
	streets, N. Y Albany and Washington	1
	Spooner & Collina, St. Lonis, Mo.    Fren. Pig., Imporiers of.	1 3
	Whitney A. B. & Bro. 58 Hudson N. Y	8
	Levis & Kimball, Philadelphia, Pa 5	B
	Boston Rolling Mills, 17 Batterymarch, Boston 5	R
	Burden Iron Works, Troy, N. Y.	1 5
	Collins H. E. & Co., Pittsburgh, Pa.	R
	Everson, Macrum & Co., Pittsburgn, Pa.,	R
	Kirkpatrick, Beale & Co., Pittaburgh, Pa	R
	Oxford Iron Co., 81 Washington, N. Y.	H.
	Roane Iron Co., Chattanooga, Tenn	1
1	Rowland Wm. & Harvey, Phila 5	R.
	Snoenberger & Co., Pittsburgn, Pa	R
	The Passate Rolling Mill Co., Paterson, N. J	R
	U. S. iron and Tin Plate Co., Pittsburgh, Pa 5	8
	Zug & Co., Pittsburgh. Pa.	8a

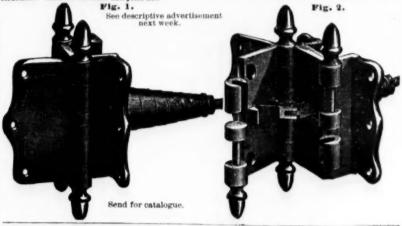
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Engravers. Collins Geo. B., 83 Reade, N. Y	Kitchen Sin Magee Furna	ks. ce Co., B	oston, l	Mass			. 6	
Jennings S. H., Deep River, Conn	Anterns, Me Dietz R. E., ( Howard & Mo	Tubular)	54 and ulton. N	56 Fulte	n, N. Y		43	
Francets, Brass, Makers of. McNab & Harlin Mfg. Co., 56 Juhn, N. Y.  58 Francets, Self. Measuring, Makers of. Enterprise Mfg. Co., of Pa., Phils. and N. Y 29	North Selden	G., Phila	detphia		*		.32	*
Davis J. B. Hartford, Conn.	Johnson, Jr. Shepard H. L	farael H.	ati. O	Philade	lphia		.40 82 .40	
Feiring and Wedding.  Bacon, Chas. N., Winchester, Mass	Lawn Mowe Charle Hobso Chadborn & C Mast, Foos &	ers. on, 47 Citi	M. N. Y	Newl	burgh, N	. Y	.18	
Files, Importers of Control   18   Files, Importers of Control   19   19   19   19   19   19   19   1	Bayley, Farre	Co., Spri	n <b>g</b> field. Lujactu Pittenu	rers of.		******	. 32	W W.
Moss F. W., 80 John, N. Y	Levels. Disston Henr Locks. Manu.	y & Sons.	Phila.		****		29	
American File Co. Pawtucket, R. I. 8 Augurn File Works, 89 Chambers, N. Y. 8 Barnett G. & H. A. and 48 Richmond, Phila. 4 Disston Henry & Sons, Phila. 29 Draner C. f. & Co. Sing Sing, N. Y. Everhart James M., Scrantov, Pa. 42 Heller & Bros. Newark, N. J. 8 McCaffrey & Bro. 1732 and 1734 N. 4th. Phila. 8 Paul Chas, B., Williamsburgh, N. Y. 8 Paul Chas, B., Williamsburgh, N. Y. 8	Bohannan Wi E. D. D. K. Miller I	Lock Co.,	adway Philad	and Ko	Sauth, f	Jrook!	vn. 36 .43	
Draver U. f. & Co., Sing Sing, N. Y. Everhart James M., Scrantov, Pa. 42 Heller & Bros., Newark, N. J. 8	E. D. D. K. Miller I Romer & Co Smith & Egg Stewart & Mi Union Nut Co	e Mfg. Co attson, Pl	Bridg	eport (	onn	******	36 8 .32	100
Johnson & Bro., 1 Commercial, Newark, N. J. 8 McCaffrev & Bro., 1732 and 1734 N. 4th. Phila. 8 Paul Chas. B., Williamsburgh, N. Y. 8	TANGER CONTAINED A.	THE CONTROL OF	Fe					
Fare Brick, Makers or. Borger & O'Brien, Philadelphia, Pa	Pittsburgh M Pratt & Whit Sellers Wm. The Bullard I Wetnerill itol Yale Iron Wo	tg. Co., I ney Co., I & Co., 160	Hartford Hartford Hami	gh, Pa. d, Conn lton Ph	ilia		.12 .41	8
Evens & Howard, St. Louis, Mo. Gardner, Stuart & Co., Pittsburgh. 17 Bail A. & Sons, Perth Amboy, N. J. 17	Wetnerili Roll Yale Iron Wo	bert & Co orks. New	. Chest	er. Pa.			.18	
Haif & Sons, Buffalo, N. Y	Machine Scr Lyon & Fello Machinista' Blaisdell P. &	Tools,	Co., Wi Makers	oj.	nrg, N.	Ÿ	.12	
Paul Chas. B., Williamsburgh, N. Y.  Fire Brieks, Makers o. Borgner & O'Brien, Philadelphia, Pa	Machinista' Blaisdell P. & Davis A. J. Franders L. i France & Co., Prentiss H. &	& Co. Ne B., Philad , 62 Chath	wark elphia. am, N.	N. J. Y	********	***** **	.41	
Dacuer, Adamson & Co. 730 Market, Phila	Maileable I Hammer & C	ron Cas o., Branfo	tings. ord. Ct	Maker	or.	******	.40	6
Barnum E. T. Detro t Mich	Mallets. N. Y. Haudle Manganese.							20 20
Finting Machines. The American Machine Co., Philadelphia	Measuring 7 Eddy Geom.d	Papen, co., 353	Classon	Ave.,	Brookiy	n. N. 1	v 9	2
Brown T. J., Rockwood, Tenn	Murray Iron	Works, B	urlingt	on, low	a		.39	
Foundry Facings. Paxson J. W. & Co., 514 Beach, Phila	Crane U. O Dickerson, V Glegg H. L. ( Pheips, Dodg Purves A. & S Quincy J. W. Sellew R. & C	an Duser Do108 W	of Co.	29 & 8t Phila	CHA, N	Ÿ	. 2	
Richmond & Potts, 119 S. Fourth, Phila. Pa	Purves A. & Sellew R. & C	Son, cor.	South a m, N.	nd Peni	p, Phila.	n, N. 1	. 5	
Furniture Aprings. Sary & Moen, 234 W. 29th, N. Y	Metal Elbow Hogen Elbow Metallurgis	Co., Cle						
Grant Fan Mill and Cradle Co., Melrose, Rensselaer Co., N. Y	Metals Perte Hayes G., 71 8	orated.					. 6	,
	Metal Roofs Brass Goods Mica.	Mig. Co.,	280 Pea	rl N. Y			. 2	
Cooper & Holle, Brooklyn, N. Y	The Chester I Miners' Can James Boyd'	Mica and l dies. Me s Sons. 10	Porcela akerson and 12	in Co., 8	7 Libert	y, N. Y	.37	
Guns. &c. Windmuller Louis & Roelker. 20 Reade N. Y 20 Gunpowder. Makers of. Kneel and H. L. (Dunces) 20 West N. W.	Mineral La Hoskins W.	A. Chatta	der in nooga,	Tenn			. 6	
Gunpewder, Makersof, Kneeland F. L. (Dupont) 70 Wall, N. Y	Elbers, Alexa Models, Burrows Wm	ander D.,				•••••	. 5	
Granam & Haines, 113 Chamoers, N. Y. 36 Salomon L., 100 Chambers, N. Y. 8 Samuel S. L., 57 Cedar, N. Y. 3 Tennis & Wilson, 81 Beckman N. Y. 32 Walbrudge G. B. & Co., 83 Reade, N. Y. 13	Mouse Trau Dietz R. E., 5 Oliver R., 106	O. F. & Co	o., Cant	on. O			. 42	
Tennis & Wilson, 81 Beekman N.Y       32         Waibridge G. B. & Co 83 Reade, N.Y       18         Hardware Dealers.       18	Ripley Mfg (Mewing Markisher Henry	CO., UHIO	nville.	Corn.	********		. 3	
Hardware Dealers.  Brower John I. & Son, 288 Greenwich, N. X. 27 Liovd. Supplee & Walton. 625 Market, Phila	Nails benoenberger Zug & Co., P						. 4	
Hardware   Importors   100   Duane   N. Y   25	Natl Machin	ery.	ireh. P				. 4	
Windmuller Louis & Roelker 20 Reade N. Y 20 Hardware Manufacturers, American Solral Spring But Co., 82 Beckman, N. Y. 42	Nickel Plate Hartman Joh Jackson Geo.	n, 87% N. W., 21 E	Sevent	h, Phile	adelphia		-83 -83	
Clark & Co., Buffalo, N. Y	Colt A. T., 47 Zucker & Le	Beekman vett, 639 6	1. N. Y.	51st, N	. Y		.38	
Hart, Bliven & Mead Mfg. Co., 107 Chambers, N. Y. 19 Humason & Beckley Mfg. Co. 100 Chambers, N. Y. 18 Lloyd, Supplee & Walton, 625 Market St. Phila. Pa., 38	Many Franci Norway Sha Rowland Win	pes. Rol	lers of.	nkford.	Phila	• • • • • • •	. 8	
Milier a Fails Mfg. Co., 74 Champers, N. Y. 25 Pratt & Co., Buffalo, N. Y. 31 Russell & Erwin Mfg. Co., New York, 10 Shenory, Hardware Co., Buffalo, N. Y. 10	Note Broker Gallauget P.	W Sand	5 Wall.	N. Y.			6	
Hardware Manufactarpra.  American Soiral Spring But Co. 82 Beekman, N. Y. 42 Clark & Co. Buffalo, N. Y. 56 Coulter, Fingler & Co. 87 Chambers, N. Y. 18 Cowles Hardware Co. Uniouville, Conn. 32 Enterprise Mig. Co. Phila. 98 Hart, Bilven & Mead Mig. Co. 107 Chambers, N. Y. 19 Humason & Beckler Mig. Co. 107 Chambers, N. Y. 19 Humason & Beckler Mig. Co. 109 Chambers, N. Y. 18 Lloyd, Supplee & Walton, 65 Market St. Phila. Pa. 36 22 Fratt & Co. Buffalo, N. Y. 18 Russell & Erwin Mig. Co. New York Shepara Hardware Co. Buffalo, N. Y. 8 Stanley Works, New Bittain, Conn. 18 Daion Mig. Co. 90 Chambers, N. Y. 7 Van Wagoner & Williams 82 Beekman, N. Y. 42 Hardware Specialites.	Nut Tappin Howard Iron Nuta. Belts. Fuller Bros.	etc Ma	Buffalc	wich, N	Y		. 26	
Hardware Specialties. Sterling & Herrick, 7 and 9 Cliff. N. Y	Nuta. Bolts. Fuiler Bros. Haskell W. H Lewis. Oliver Roseberry G Russell, Birds Sheiton Co., Standard Nut Sternbergh J Union Nut C	eo. D., Po	Pawtuc pa, Pitta ptaviile pd. Port	ket. R. sburgh. s, Pa	Pa		96 13 4	
Covert E. & J. C., Farmer Village, N. Y	Sheiton Co., Standard Nui Sternbergh J	Birmangh t Co., Pitt H., rica	am, Co aburgh aing, Pa	nn. , Pa	*****	*****	.42 6 .43	
Harness Snaps, Covert Mfg. Co., Troy, N. Y	Lester Oil Co	., 81 Maid	en Lan	e, N. Y.	****** *		.40	
Stanley Works, New Britair, Conn	Oll Stones. Boyd & Chas Oll Stoves. Pool Geo. &	e 107th an	d Harle	em Riv	er, N. Y		. 35	
Hossting Engines. Makers or.   Crane Bros. Mfg. Co . Chicago, III	Old Iron, et	Co., 108	Walnu	. Phila	ielphia.		. 5	
Hoisting Machines, Harrington Edwin & Son, Philadelphia, Pa	Packing (St. "Empire Pac Symonds & C	eam). king," Co., Phila	anfield : delphia	Mfg. Co	., Ph	derphi	1.38	
New York Handle & Mailet Werks, 456 E. Houston36	Paints and Devoe F. W. Pans. (Drip) Lewis, Daize	& Co., 11	Fulto	n. N. Y.		*****		1
Horse Nalls, Makers of Anabers, N. Y. 8   Anabel Horse Nall Co. 36 Chambers, N. Y. 8   Champion Steel Horse Nall Co. Appleton, Wis. 26   Globe Nall Co. Boston, Mass. 31   Horse Nall Co. Cleveland, O. 35   National Horse Nall Co. Vergennes, Vt 27   Northwestern Horse Nall Co., Chicago, Ill. 36   Patt & Co. Buffalo, N. Y. 31   Putnam Nall Co., Nepomeet, Hass. 35   Section N. Jr., 3   Fearl, N. Y. 18   Section N. Jr., 3   Searl, N. Y. 18   Section N. Jr., 3   Searl, N. Y. 18   Sea	Patent Soile Howson & Sc	on. Phila.	and Wa	rgh, Pa	on, D. C.		. 8	
National Horse Nail Co., Vergennes, Vt 27 Northwestern Horse Nail Co., Chicago, III 35 Patt & Co. Buffalo, N. Y. 31	Patent Solid Howson & Schu Lenz & Schu Spencer A. H Stetson Thou	mas D. 2	Boste Murra	on, Mas ay N. Y		******	7	
Futnam Nail Co., Neponset, Mass. 35 Setson N. Jr., 3 Fearl, N. Y. 18 Horse Shoes, Makers or.	Pens (Steel) Perry & Co Picks, Maker Pierson & Co	Limited,	112 & 1	14 Wild	am, N. 1	Y	. 8	
Horse Shoes, Makers or, Boston Rolling Mills, 17 Butterymarch, Boston. 4 Burden tron Works, Troy, N. 1 Rhode Island Horse Shoe Co., Providence, E. 1., 25 Schoenberger & Co., Pittsburgh, Pa	Katon. Cole &	Burnha	m Co., 5	58 John.	N. Y		26 26	:
Hydrants. &c McLean John, 300 Monroe, N. Y	Pancoast & h.  Browning Jo Pier, Water Mood B. D. & Wood B. D. & Plane Irens. Buck Bros. D. K. Barton Planes. Man Baliey Leon Baliey Write Plated War Hall, Elton & Plers.	seph, Ph	lladelph	ters of			39	
Hydraufic Jacks, Ondgeon Richard, 24 Columbia, N. Y	Wood R. D. d Plane Irons. Buck Bros., J	k Co., 400 Manufa Milibury,	Chesnu cturer Mass	of		******	11	
Hartford Steam Boller Inspection and Insurance Co. 41  Iron Brobkers. Boynton Geo. A., 70 Wall, N. Y	Planes. Man Bailey Leons Batter Write	Tool Co. ufactures ard & Co.	. Roche , Hartfe	ord, Cor	nn	N. V.	25	1
Iron Brokers.	D. R. Barton Staniev Ruie Plated War	Tool Co.	Roche Co., 36 C	eter, N	rs, N. Y		. 18	1
ron. Charceal. Warms or Cold Blass, Quincy John W., 36 William. N. Y.  Iron Commission Merchants. Adams Hugh W., 56 Pine, N. Y.  Lowe S. B., Chattanogs, Tenn. Spooner & Collins, St. Louis, Mo	Piters. Hagstoz & Ti	horpe, Le	dger B	rs, N. 1 uilding,	Phila	******	11	-
Lowe 8. B., Chattanoogs, Tenn. 6 Spooner & Collins, St. Lonis, Mo. 6 Iron. Pig. Importers of. Williamson James & Co., 69 Wall, N. Y.	Hagstoz & T. Plumbers' M Everhart Jas Carr Wm. S. Pocket Kni Boker Herms	& Co. 100	Centre	N. Y.			42	
		eker.	Warre	n, N. Y	· · · · · · ·		11	
Borden & Lovell, 70 and 71 West, N. Y.  Cooney Daniel F. 88 Washington, N. Y.  Huerstel G. 99 Market Silp, N. Y.	Portable Co Thorne G. L. Presses. Po- Bliss & Willi Merriman A. The Stiles &	ams, 167 H., West Parker Fr	Meride ress Co.	th, Bro en, Ct Middle	oklyn stown. (	i	41	
Harrison & Ollloon. 858 to 562 Water. N. Y.  Jackson & Chase, 366 and 308 Franklin, N. Y.  Judson B F. 457 and 459 Water. N. Y.	Pressure Bi Keystone Po Pulleys, Fri Mason Volue Penneld Biod Providence T	etable Fo	ren Co	Poller	telphia		40	
Oggen Wallace, 95, 87.59 and 91 Elm, N. Y. 4 Pierson & Co., 24 Broadway, N. Y. 4 Pullman J. Wesley, Philadelphia, Pa. 5	Penneld Bloc Providence T Pump Piste Sprague Wm	A Co I	Dalladel	phia P	•		41	
Richards 1). W & Co., 22 Mangin St., N. V. Wallace Wm. H. & Co., Albany and Washington streets, N. Y.	Pumps, Make Douglas W. A Rumsey & C Rumsey S. 1 Southern Pu Union Mfg. C	ers of . & B., Mid- o., Senec	detown Fails.	Conn.			7	
Iren Pealers. Abeel Brothers, 190 South, N. Y. Bonnell, Botaford & Co., Youngstown, O., & Borden & Lovel, 70 and 71 West, N. Y. Cooney Daniel F. & Wassington, N. Y. Hueratel G. & Market Silp, N. Y. Fuller, Low Gillson, 588 to 562 Water, N. Y. Jenson & Chase, 288 and 288 Franklin, N. Y. Judson B. F. 457 and 459 Water, N. Y. Judson B. F. 457 and 459 Water, N. Y. Pierson & Co., 24 Broadway, N. Y. Pierson & Co., 24 Broadway, N. Y. Pielman J. Wesley, Philadelphia, Pa Quincy John W. & William, N. Y. Wallace Win, H. & Co., Albany and Washington streets, N. Y. Williamson James & Co., 68 Wall, N. Y. Levis & Kimball, Philadelphis, Pa Jrau, Monsylcothers's Agents, J. Levis & Kimball, Philadelphis, Pa Jrau, Monsylcothers's Of.	Southern Pu	mp and P Co., 98 Ch	St. Lot ipe Co ambers	Chatta	nooga,	Tenn.	6	
Levis & Kimball, Philadelphis, Pa	Raitrond & Jackson & T. Raits, Iron Atkins Bros. Cambria Iron Cleveland Ro The Edgar T Raitway. C Wilson, Wall	yier Bait or Steel Pottsvill	more, Make e, Pa	Md re of.		******	6	
Biradiey, Reis & Co., 22 Cliff, N. Y. Burdea fron Works, Troy, N. Y. Cleveland Rolling Mill Co., Cleveland, O., 6 Collins H. E. & Co., Pittsburgh, Pa. 5	Cleveland Ro The Edgar T	homson S	Co., Coteel Co	levelan 57 Bro	d, O adway, Forgin	N. Y.	35	
Levis & Kimball, Philadeiphis, Pa  Frau, Mossifocturers of.  Boston Rolling Mills, 17 Batterymarch, Boston.  Bradier, Reis & Co., 22 Cliff. N. Y.  Burden iron Works, Troy, N. Y.  Gleveland Rolling Mill Co., Cleveland, O. 6  Collins H. E. & Co., Pittsburgh, Pa. 5  Boston Monago, Pa. 4  Kirkpatrick, Beale & Co., Pittsburgh, Pa. 4  Kirkpatrick, Beale & Co., Pittsburgh, Pa. 4  Leonard John, 40 & 451 Wess Et. N. Y.  Oxford Iron Co., 81 Washington, N. Y.  4 Phenix Iron Co., 410 Wasnut, Phila. 5	Revolving Sc	craper Co	., Colum	nbus, O	*******		. 6	
Oxford Iron Co., 81 Washington, N. Y. 4 Phonix Iron Co., 410 Wainut, Phila. 5 Roane Iron Co., Chattanoora, Tenn	Grundy, Geo Hoopes & To Old Colony i Townsend W	. C. 165 G ownsend, Sivet Wor	reen wie Philad rks, Kin	ch, N Y elphia. igston.	Pa Mass	*****	.36 .12 .13	
Rowland James & Co., 220 N. Delaware, Phila	Townsend W Rend Scrap Semple & Bl Reiling Mil Moore ames	P. & Co	Co., St.	Louis.	Mo	Chemical	. 12	
The Passaic Rolling Mill Co., Paterson, N. J	Moore James Rules, Manu Staniev duje	Cor 16t	or.	uttonw	ood, Phi	ila	.41	
Oxford Iron Co., 81 Washington, N. Y.  9 Phonis Iron Co., 410 Wasnus, Philis.  10 Roane Iron Co., Chattanoogs, Tenn.  11 Rowiand James & Co., 200 N. Delaware, Philis.  12 Rowiand Wm. & Harvey, Phila.  12 Snoenberger & Co., Pittsburgn, Pa.  13 Taylor & Boggis, Cleveland, O.  14 The Passate folding Milt Co., Paterson, N. J.  15 Vulcan Iron and Nail Works, Chattanoogs, Tenn.  16 Was n Car and Foundry Co., Chattanoogs, Tenn.  17 Zug & Co., Pittsburgh, Pa.  18 Zug & Co., Pittsburgh, Pa.  19 Wood W. D. & Co., Pittsburgh, Pa.  17 Wood W. D. & Co., Pittsburgh, Pa.  17 Yes Weedish, Fragoriers of Mittander Nils, 69 William, N. Y.  18 Phonis Vision Philaments.	Ruies. Manu Staniev Aule Stephens & C Saddlers' To Osborne C. S Sand and E Baeder, Adar	o., River	ewark,	N. J	of		. 8	
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America of Attaches will An December We Time I	SPRINGLIAMS W	THE OWN E						

Sa.ws. Makere oj.         .	Stocks and Dies. Holroyd & Co., Waterford, N. Y
Boynton E. M., 80 Beekman, N. Y	Mione Iranware.
Peace & Hogan, Williamsburg, N. Y	Metal Stamping & Enameling Co. St. Louis, Mo
N. Y	Steve Boards, Manufacturers of Ansonia Brass and Copper Co., 19 and 21 Cliff, N. Y Shepard Sidney & Co., Buffalo N. Y
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Honles Manuscaturers of	Stove Pipe. Shepard Sidney & Co., Buffalo, N. Y
Brandon Mfg. Co., Brandon, Vt	Metzner W. C., Chicago, Ill
Rienie Bros., #th above Master, Phila	Michigan Stove Co., Detroit, Mich
Scoops,	
Semple, Birge & Co., St. Louis, Mo24	Dunbar, Hobari & Whidden, 116 Chambers, N. Y
Borews. Makers of. American Screw Co Providence. R. 1	Shelton Co., Birmingham, Ct
Miles F. S., 26 Quarry, Phila	Taps and Dies.  Manning H. S. & €o., 111 Liberry, N. Y
Screws, function of	H. Prentiss & Co., 14 Dey, N. Y
Bruce Geo. W., 1 Platt, N. Y	Tin Plate. Manufacturers of U. S. Iron and Tin Plate Co., Pittsburgh, Pa
Screw Cutting Machinery. Wiley & Russell Mfg. Co., Greenfield Mass40	Try Squares, Bevels &c. Makers of Bailey Leonard & Co., Hartford, Ct
Screw Drivers, (Improved) Makers of. Disaton Henry & Sons, Phila	
Wilkinson H., Collinsville, Conn	Tube Expanders. Dudgeon Richard, 24 Columbia, N.Y
Dishman F. E., New Albany, Ind	Tubular Bow Sockets. Topliff & Ely, Elyria, O
Seythe Stones,   Dishman F. E., New Albany, Ind.   35   Pike A. F., East Haverhill, N. H.   13   Sewer Gas Traps.   Ruhrer 8., Cleveland, O.   33	Twist Drills, Makers of. Morse Twist Drill & Mach. Co., N. Bedford Mass 3
CHRISTING.	Tuvere Irons.
Wood Thomas, Philadelphia	Harkins & Pray, Bristol, Pa
Shavels, &c. Hubbard, Bakewell & Co., Pittsburgh, Pa	Upholaterera' Gooda. Turner & Seymour Mfg. Co., 3: Reade, N. Y
Kimball Shevel Co , Baltimore, Md	Valves, Gas, Water and Steam.
Huboard, Bakewell & Co., Pittsburgh, Pa. 25 Hussev, Binns & Co., Pittsbur **, Pa. 39 Kimball Shevel **Co., Baitimore, Md. 36 Remington E. & Sons, 57 Reade, N. Y. 39 Rowland B. & Lo., Philadelphia. 17	Valves, Gas. Water and Steam. Ludlow Valve Mfg. Co., Trov. N. Y Mohaws and Hudson Mfg. Co., Waterford, N. V
Shei, etc. Sparks Thos. W., 121 Wainut, Philadelphia	Bracher Ventilator Co., 3 Park Row, N. Y
Clampland Dandmann Cl. Clampton A C.	Vises. Batley Wringing Machine Co., 99 Chembers, N. Y2
Hildick A. H. & Co., 12 Warren, N. Y	Millers Falls Co., 74 Chambers, N. Y Flaner & Norris Trenton, N. J
Bide Spring Connecting Rods.	Water Wheels (Turbine).
Cieverand marware Co., Cieverand, C. & Sheava ("Sheeps", "Sheeps", Cieverand, C. & Sheava ("Sheeps", Coon 11 Wilkinson H., Collinsville, Coon 11 Side Sarling "onnecting Rods. Topliff & Ely, Elyris, C 13 Smetting Works. Reeves Paul S., 700 South Broad St. Phila 42	Water Wheels (Turbine). Alcott F. C. & Son, Mount Holly, N. Y.  Bracher Ventilator Co., 3 Park Row, N. Y.
Reeves Paul S., 760 South Broad St. Phila42	
Spelter. Manning & equier, 175 Liberty N. Y	Rodgers H. A. 19 John St., N. Y
Springs. Cary & Moen, 23i W. 59th, N. Y	Semple, Birge & Co., St. Louis, Mo.  White Lend, Manufacturers of Brooklyn White Lead Co., 89 Maiden Lane, N. Y. S. Colgate Robert & Co., 287 Pearl, N. Y. S. Jewett John & Sons 18 Front, N. Y. S. Lewis John T. & Brook, 231 S. Front, Phila. Pa.  Window Pprings, Makers of Hammond W. S. Lewisberry, Pa.  Wire Drowing Machinery. Held S. & Son, Barre, Mass.
Stamped and Japanned Tip Ware.	Colgate Robert & Co., 287 Pearl, N. Y
Stamped and Japanned Tip Ware. Shepard Sidney & Co., Buffalo, N. Y	Lewis John T. & Bros., 231 S. Front. Phila., Pa 3
Firmenich J. G. & F., Buffalo, N. Y	Hammond W. S., Lewisberry, Pa.
The Chicago Stamping Co., Chicago, III.  **Steam Boilers.**  Firmenich J. C. & F., Buffalo, N. Y	
Cameron A. S., East 28d, N. Y00	Cary & Moen, 231 W. 29th, N. Y
Clayton Jas., 11 Water, Brooklyn, N. Y	Wire, Manufacturers or.  Cary & Moen, 231 W. 28th, N. Y.  Gilbert & Bennett Mfg. Co., 243 Fearl, N. Y.  Haigh J. Lloyd, 81 John, N. Y.  Harrison Wire Co., St. Louis, Mo.  Howard & Morse, 45 Fulton, N. Y.  New Haven Wire Works, 58 Cliff, N. Y.  Frentiss Geo. W. & Co., Holyoke, Mass.  Washburn & Moen Mfg. Co., Worcester, Mass.  Trenton Iron Co., Trenton N. J.  Worcester Wire Co., Worcester, Mass.
Knowles Steam Pump Works, 92 Liberty, N. Y40 McGowan John H. & Co., Cincinnati, O41	Harrison Wire Co., St. Louis, Mo Howard & Morse, 45 Fulton, N. Y.
Valley Machine Co., Easthampton, Mass	New Haven Wire Works, 58 Cliff, N. Y.
Albany Steam Trap Co., Albany, N. Y	Roberts Henry, Newark, N. J
Chester Castings Co., Evelina, Phila, Pa	Trenton Iron Co., Trenton N. J.
Steel Castings. Manufacturers of Chester Castings Co. Evelina. Phila. Pa	
Pittsburgh Steel Casting Co., Pittsburgh, Pa42	Brown & Sharpe Mfg. Co., Providence, R. I
Steel Importers.   28   Steel Importers.   28   Steel Importers.   34   R. H. Wolff & Co. 18 Cliff, N. Y.   34   R. H. Wolff & Co. 18 Cliff, N. Y.   34   Hobson Francis & Son, 97 John, N. Y.   34   Jonas, Meyer & Colver, Hartford, Conn.   34   Moss F. W., 80 John, N. Y.   38   Piersons & Co. 24   Broadway, N. Y.   4   Van Wart, Son & Co., 134 and 136 Duane, N. Y.   11   Steps if Merchal (Musher Species)	Myown & Sharpe Mig. Co., Providence, K. I. Wire Goods, Manutacturers of, Corning Jasper E., 38Cliff, N. Y. Eaty, W. S., 59 Fulton, N. Y. Gilbert & Bennett Mfg. Co., 273 Fearl, N. Y. Hadqieton Joseph Rochester, N. Y. Oliver E. 106 & 108 Beekman St., N. Y.
Hobson Francis & Son, 97 John, N. Y 84	Gilbert & Bennett Mfg. Co., 273 Pearl, N. Y
Moss F. W., 80 John. N. Y	
Van Wart, Son & Co., 134 and 196 Duane, N. Y11	Dunbar, Hobart & Whidelen, 116 Chambers, N. Y. 2 Hassail Whilam, 63 & 65 Elizabeth, N. Y 2 Wire Hope, Iron and Steel, Maxon G. Hazard Mig, Co., Wilkesbarre, Ph. Roebling's John A. Sons, Trenton, N. J.
Randali & Jones, 10 Oliver, Boston, Mass34	Wire Rope, fron and Steel. Makers of.
Steet Manufacturers. Cleveland Rolling Mill Co., Cleveland, O., 6 Gautier D. G. & Co. Jersey City, N. J. 34	Roebling's John A Sons, Trenton, N. J
Migvale Steel Works, Nicetown, Phila., Pa	Adams F. F. & Co., Erie, Pa
Miller Metcaif & Parkin, Pittsburgh	Wrenches, Manufacturers of. Bemis & Call Hdw. & Tool Co., Springfield, Mass., 3
Gautter D. G. & Co. Jersey City, N. 34 Mitter Metcaff & Farkin, Pittsbargn, 44 Millier Metcaff & Farkin, Pittsbargn, 34 Howland Wm. & Harvey, Frankford Phila, 42 Manager Dros. See Lo., Syracuse, N. Y., 34 Smith, Millier Metcaff, 15 Smith, Millier M. 34 Smith, M	Coes A. G. & Co., Worcester, Mass
Singer, Nimick & Co., Pittsburgh. 3 Standard Steel Works, Phildelphis, Pa. 5 The Edgar Thomson Steel Co., 57 Broadway, N Y .37 Wardlow S. & C., Sheffield, England. 34	Roceling's John A. Sons, French, N. J.  Wooden Ware. Adams F. F. & Co., Erie, Pa.  Wrenches, Manufacturers or. Bemis & Call Hdw. & Tool Co., Springfield, Mass., 3 Coes A. G. & Co., Worcester, Mass.  Goer L. & Co., Worcester, Mass.  Girard Wrench Mfg. Co., Girard, Pa.  Wringers.
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For the country trade constantly on hand.

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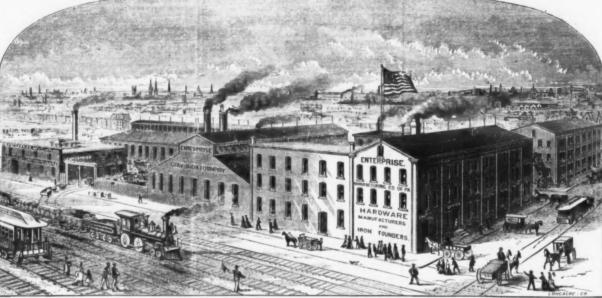
# American Coffee, Drug and Spice Mills,

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Combined Sausage Stuffer, Fruit, Lard and Jelly Presses.

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## SMOOTHING and POLISHING IRONS.

Patent Self-Measuring Faucet.
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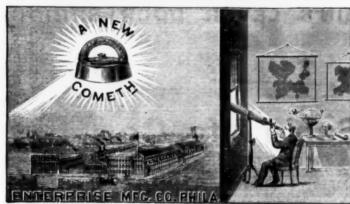


Entonni



Enterprise Patent "Star" Iron."

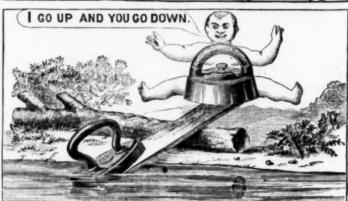






MRS. M. FLORENCE POTTS.
The Inventor of the Cold Handle Sad Iron.







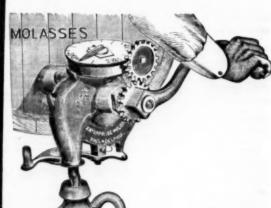
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Price—Nickel-plated, \$2.50; Plain Polished, \$2.00.

Three Irons, one Handle and Stand constitute a Set.

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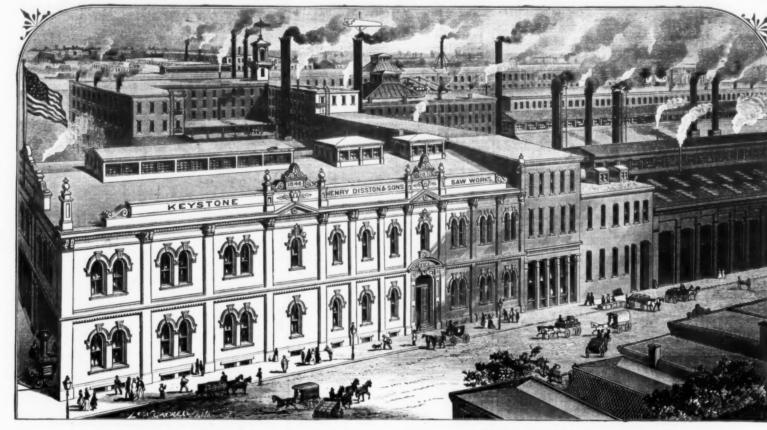
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# Keystone Saw, Tool, Steel & File Works.

# FRONT AND LAUREL STREETS, PHILADELPHIA.

Branch Works, Tacony, Philadelphia.

Branch House, Randolph & Market Streets, Chicago. Ill.



These works are the largest of the kind in the world, the main factories at Philadelphia covering over eight acres, and the branch at Tacony extending over four acres of ground.

They supply not only the United States, but their manufactures are known and used throughout England, the Continent of Europe, Japan, Australia and South America.

The following letter from England is as far back as 1867, since which time the trade has continually increased.

London, England, November 23, 1867.

Dear Sir,—You will be pleased to learn that your circular saw-blade reached us yesterday safely. We have tried it to-day, and found it more than we expected of it. In every respect it is the best saw we have ever seen, and its equal cannot be produced in Europe. We beg to thank you for all your kind attention Your obliged and obedient servants, to our wishes, and are

The articles manufactured by Disston & Sons are fully warranted, and their superior quality is acknowledged by all who have ever used them. These goods are now sold in all the principal markets of the world.

At the Centennial Exhibition, held at Philadelphia in 1876, the display made by this firm was of such marked excellence that the premium was awarded to them for "A very large display of surpassing excellence of MATERIAL, STYLE AND FINISH."

#### "EVERY ARTICLE WORTHY OF THE HIGHEST COMMENDATION."

During the Exhibition they received an order from a Hamburg house for over six thousand dollars' worth of goods, and the trade has been continued ever since with mutual satisfaction to both parties, respecting both price and quality. The Japanese, while erecting their building on the grounds, ordered a few saws for trial, and before leaving the country left an order with Disston & Sons for over two hundred dozen saws to be taken to Japan, price and quality both being satisfactory.

Another fact worthy of note is that they sent one hundred and twenty-five dozen of Files to Yokohama, Japan, at a certain invoiced price, and, on receipt of an account sales from their Agents, the accompanying draft was for more than the original account.

The first premium was awarded to Messrs. Disston & Sons at the Exhibition held at Sydney, N. S. W., in 1877, and at all other previous Exhibitions at which their goods were displayed.

The Exhibition Universelle, now being held at Paris, contains a display of the world-renowned manufactures of Henry Disston & Sons.

# New York Wholesale Prices, May 1, 1878.

HARDWARE.	Table Butts, Back Flaps &c	dis 35&10 % dis 35&10 % dis 40&10 % Danb	III Chucks.—Morse' ury g Beaters.	s Beach Patent dis 30 % Adjusteach \$10,004, dis 30 %	Rolled Plate	dis 70&10 % dis 70&10 % dis 70&10 % dis 50&10 % dis 50&10 g dis 10	Porcelain Head, T. & S. Mfg. Plaiting Irons. Plaiting Machines. Magic. Astor Flaiting Machines. Crown Flaiting Machines. Plaiting Machines. Balley's Patent Adjustable, me Balley's Patent Adjustable, new list Defiance Adjustable, me list Patent From Flaiting Machines.  Balley's Patent Adjustable, me list Patent. Balley's Patent Adjustable, me list Patent. Balley's Patent. Balley's Patent. Auburn Tool Co. Defiance. D. R. Barton Tool Middletown Tool Middletown Tool Onio Tool Co. Pliers and Nipper Jool ( Pliers and Nipper Jool ( Pliers and Nipper Jatent.	₩ doz \$3.7%, d
avils.  American	spring ninges:	p'ddis 25 % Famil neydis 10 % Natio	lynal	# dos #s.co, dis 20 %  # dos #s.co, dis 20 %  # dos #s.co, dis 20 %  # dos #s.co, dis 23 %  # dos #s.co, dis 23 %  # dos #s.co, dis 23 %  # dos #s.co, dis 20 %	"Providence" lover	10 in. 434c # b \	Crown Plaiting Machines 6in., 86,00. roin Planes and Plane Irons.	., \$10.00,each.
vils. American # 5 gold : 105g over 200 fs 10, gold : 105g	Centennial, Japanned.  Ornamental.  Union Spring Hinge Co.'s	dis 25 % Schor Gis 25 % Mill I	vator Buckets. L. Buckets, light, 5 to	to inches, (Due's Improved)	Heavy Welded Hook	\$ \text{To 12 in. 11 c} \ \ \text{dis 30 } \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	First Quality Second " Bailey's Patent Adjustable, no	ew list Jan. '77, di
. Valley Mfg. Co	American Spring Hinge Co.'s. Union Mfg. Co. Blind Butts. Parker.	dis 25 % Mill E	L. Buckets, heavy, 5 to	o to inches (Duc's Improved)  and the state of the state	HoesSolid Shank, C	8	Bailey's "Victor" Defiance Adjustable, new list D. R. Barton Tool Co	tdi
	" Paimer	dis 66% to \$ Genu	ine Chester—Regular Flour at	# dox #5.50 @ \$10.20, net  Nos. # B 5 c c net  of FF # B 38/c # B 5 c  of FF # B 5 c c net  of B 10 c net  of B 20 c net  of B 30 c net  d Ware.  d 18 40 @ 50 %  d 18 30 @ 35 %  d 18 30 @ 35 %	Riveted Eye	dis 30 %	Plane Irons, Butcher's Buck Bros Bailey's Patent	85.50 t
er (French, Swift & Co). dis 50 @ \$ old.  s Mig. Co.  n's Patent. s, Douglass Mig. Co. dis 4,8 to \$ dis 5,8 t	Seymour.  Shepard.  Lull & Porter.  Nicholson.  Huffer.  Clark's, Nos. 1, 3, 5, 40 and Sarvent's.  Hutchers' Cleavers.  Humason & Beckley Mfg. Co.  D. R. Barton Tool Co  Bradley's.  Beatty's.	dis 66%&10 % Wash	flour Flour ngton Mills, Grain	P B toc net	Scovill Pattern Handled Solid C. S. Shan	dis 25 @ 30 %	Auburn Tool Co. Defiance D. R. Barton Too	's
8, Ives dis 45&10 % dis 45&10 % dis 30&10 % dis 30&10 % dis 10&10	Clark's, Nos. 1, 3, 5, 40 and carent's.	dis 70% Hami	oden Emery Grain Flour		Scovili Pattern, Handled Hick's Pat. Solid C. S. Pla	anters' dis 20&10 @ 30 %	" Middletown Too Ohio Tool Co " Spear & Jackson	1 Co
tion Jenning's Bits. dis 30 % "Jennings" Bits. dis 25 % 'Single Twist Bits. dis 40 %	Humason & Beckley Mfg. Co D. R. Barton Tool Co	dis 20 % Kettle	Pans	dis 40 @ 50 %	Bird Cage, Sargent's list.	dis 60&10&10 %	Spara & Jackson Pliers and Nippers. Button's Patl Nippers, No. 1,8 Humason & Beckley Mfg. Co. Gas Pilers Eureka Pilers and Nippers. Pliumbs and Levels. Disston's. Standard Rule Co.'s Pat. Adj Johnson's Patient Adjustable Davis' Patent. Pocket Levels. Post Hole and Tree Augers. Fletcher Post Hole Augers. Fletcher Post Hole Augers.	Codi
ews Bits	Beatty's 3 4 5 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	7 8 Door	utcheons. Lock8a	me discounts as Door Locks	Cotton (Humason & Beck Belt.	dis of the control	Hull's Patent Nippers, No. 1, \$1 Humason & Beckley Mfg. Co. Gas Pliers	15 ; No. 2, \$21 P doi
" Ives	Hart Mfg. Co	dis 50%10 % Wood	icets.	dis 25 %	Weston's, No. 1, 8	10.00; No. 2, \$9.00 & doz dis 25 % loz	Eureka Pliers and Nippers Russell's Parallel P. S. & W. Cast Steel	
w Augers Ives dis 25 %	Can Openers. P de American B de	os \$2.00, dis 20 % Fenn' Star	s Cork Stops	dis 40 %	Clothes Line, Hart's list "Sargent's li	dis to & 10 & 5 & 10 % 5 & 10	Plumbs and Levels. Disston's	justabledl
"Bonney's Adjust., Fdoz \$48—dis 25&10 % Stearns' Adjust., Fdoz \$48—dis 25&10 % 'Ves' Expansiveeach \$4.50—dis 40 %	Lyman's. W do Poole. W do No. 4 French W do	OR \$3.75, dis 20 % Wood OR \$3.75, dis 40 % Metal OR \$2.25, dis 50 % Cont	and Metalliclic Key, Leather Line	dis 40 %	Ceiling   Hart's list Bargent's list		Chapin's Non-Adj Standard Rule Co.'s New Adj	ustabledl ustabledl
" Univ'sal Expansive, each \$4.50—dis 20 % t Bits	No. 5, Iron Handle	OE \$2.25, dis 60 % Enter OE \$2.50, dis 10 % Fel	prise (Seif Measuring loe Plates	() % doz, \$36.00, dis 20 %	Coat and Hat, Hart's list "Sargent's li	dis 65&5&10 %	Johnson's Patent Adjustable. Davis' Patent.	ustabledi di di
e Cut Gimlet P/ts Shepardson'sdis 25&10 % e Cut Gimlet P/ts Shepardson'sdis 40 % Ct. Valley Mfg. Co., dis 20&10 %	Star	OZ \$5.00, dis 25 % File Ameri Aubur	can File Corn	.\$5.00 to £ currency, dis 30 % .\$4.00 to £ currency, dis 25 %	Tassel (T. & S. Mfg. Co.).	St.   Gills 45&70   St.   Gills 45&70   St.   Gills 45   St.   Gills 45   St.   Gills 40   Gills 40	Pocket Levels Post Hole and Tree Aug Samson Post Hole Digger	di rers. per doz \$36.00.
" Univ'sal Expansive, each \$4.50—dis 20.5 t Bits. \$7.50 * pross, dis 40.5 t Diamond. \$7.50 * pross, dis 40.5 t Beta". \$8.50 * pross, dis 40.5 t Beta". \$1.50 * pross,	E. B. 1-10 Ground. E. B. 1-10 Turned.		le. I. Barnettlson	(1)	Wire Screw Hooks and E	's listdis 40 % yesdis 75&10 %	Vaughan's Post Hole— 6 in. \$23.60; 7, 8 and 9 in. \$25	P doz 36.00
's Bit Stock Drill, List of Jan. 1, '76dis 25 % Imedieu's Ship Augers	" D. W. P. 1/4	700, dis 5 % Heller 700, dis 5 % Madde s. 65 @ 680. gold Jowit	r & Bros. en & Cockayne File C t's.	.\$5.00 to £ currency, dis 20 % 0\$5.00 to £ cur., dis 25 % 	Whiffietree—Patent Hooks and Eyes—Maileat		Fletcher Post Hole Augers. Vaughan's Post Hole 6 in. \$23,60; 7, 8 and 9 in. \$25. Leed's. Potnto Parers, &c. Bay State. "Saratoga" Peeler and Slicer Pruning Hocks.	# doz #
Hafts.   \$3.50 \( \pi \) gross—dls 35&10 \( \frac{5}{2} \) gross—dls 35&10 \( \frac{5}{2} \) dis 35&10 \(	Double Waterproof, 1-48, \$1.50; 1-Colt's.	108, \$1.58c, gold J. & R .1-108, 80c gold Stubs' dis 50&7 % Butch	er's		Horse Nails.	0 270 250 240 230 2201	Disston's Combined Pruning 1	Hook and Saw
t Sewing, Short. \$1.00 ₱ doz—dis 35&10 ₹ Long. \$1.40 ₱ doz—dis 10 ₹	Cards.—Horse and Curry	dis 3356&10 % Walte	er Spencer & Co.'s "D r's & Gamble	damond" 450 to £ gold 450 to £ gold 450 to £ gold	" Finished, Polished	dia		per doz \$18.00,
Blake's   \$3.00 dls 40     Parmelee's   small, \$20   large, dls 25     Parmelee's   small, \$20   large, dls 25     Prom   Swift & O   size     From   Swift & O   size     From   Swift & O   size     From   Swift & O   size     I size   Size   size     Size   size   size   size     Size   size   size   size     Size   size   size   size     Size   size   size   size   size     Size   size   size   size   size     Size   size   size   size   size   size     Size   size   size   size   size   size     Size   size   size   size   size   size     Size   size   size   size   size   size   size   size     Size   s	Carpet Stretchers. Cast Steel, Polished	os \$5.00, dis 30 % Limet	ston & Sons (new list & Co. (French) on's Cant.	)ain 35 % 	Cortland Nos.	29e 26e 25e 24e 23e   5 6 7 8 9 10 29e 26e 24e 23e 22e 21e { dis 15 31e 28e 26e 25e 24e 23e } @ 25 %	" Fruning Hook. Pulleys, Judd's Axle. Hot House and Tackie. Jap'd Screw. Jap of Clothes Line. Hay York Solid Eye, 44-5; Sw. Punches.	P doz \$0.50, dis dis 6
Sewing, Common	Casters. Bed Plate and Shallow Socket. Deep Socket. Cattle Leaders.	dis 55 % Knox,	ting Machines.		Globe (New list) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	5 0 7 8 9 10 26 23 21 20 19 18c net	Jap'd Side	dis
Patent Feg	Deep Socket. Cattle Leaders.	dis 40 % Peerle	ess, 4-inch Rolls	4.40 each net	National. Pointed and	25 22 20 19 18 17c net	Hay Fork Solid Eye, \$4.50; Sw "Anti-Friction,"	vivel. \$5.00, dis 400
Shouldered Brad.   # gross #8.70—dis 29kit 5   Handled Brad.   #8.00 # gross—dis 39kit 5   Handled Scratch.   #7.50 # gross—dis 19kit 5   Handled Scratch.   #8.006 #8.1.5 # dOm—net *ets, Alken*s.   # dos #81.00—dis 49kit 5   No. 42, #10.50; No. 43, \$12.50dis 05   Stanley*s Excelsior.No. 1, #11.00—dis 29kit 5   Stanley*s Excelsior.No. 1, #11.00—dis 29kit 5	Cattle Leaders. Hotchkiss' Sons'. Humason, Beckley & Co.'s. Sargent's. Union Nut Co.	dis 60 % Impro	ved Knox (Climax),	inch 2.64 each net	Putnam Hammer, P't'd Vulcan P't'd & Blued	26 23 21 20 10 18c net 26 23 21 20 10 18c net 26 23 21 20 19 18c net	Punches. Selt or Drive	E \$2.00; 2.25; 2.50, ₩ doz \$7.00,
No. 42, \$10.50; No. 43, \$12.50dis 60 % Stanley's Excelsior. No. 1, \$11.60—dis 24&10 %	Union Nut Co. Chains. Trace, 0%-19-2 by the cask, # pair 6%-10-3 by the cask, # pair 6%-10-3 by the cask, # pair 60	r, gold, 45 @ 46c Empty	316-inch Roll	#00 each net 475 each net 475 each net 2,56 each net 4	R. I. Horse Shoes.—Burder Medium and Heavy	3ic 28c 26c 24c 24c 36c 36c 25c 3 5 0 7 8 9 10 18c net 25 23 21 20 10 18c net 25 23 22 11 18 17c net 25 23 22 21 20 0 18c net 25 23 22 21 20 0 18c net 26 23 21 20 10 18c net 26 25 21 20 10 18c net 27 keg \$-3376 28 keg \$-3756 28 keg \$-8756	" Bemis'	₩ dos \$1.44
es, ion (Guy C. Hotchkiss, Field & Co.)? b 44c Collar, Case Hardened, Chilled Box? b 5c e (Frense,—Frazer's	German Halter Chain.	r, gold. 49 @ 500 Eurek dis 30% 5 % gold dis 30% 5 % gold	a, No. 1, 7-inch Roll No. 2, 5-inch Roll	6.75 each net 5.00 each net n., \$2.50; 8-in., \$2.75 each, net	Perkins' Snow	e. # keg 4.87%	Rail. Bail. Bail. Grow, Wrought B. Iron, Paint Barn Door, 1/6, 5/4 and 3/4 inch. Tor N. E. Hangers. Cast Steel.	rass # 18 400 ed # foot 9c, die
ances. ght or "Common"dis 25&to % eer Spring Balancesdis 25 % 4.6ysGray's Ratchet	Galvanized Pump Chain	10 10 ge dis 10 % Cham dis 60 % 5 % Domei	pion, 4 in., \$2.15; 6-in. stic Flutera. Hand Fluter	, \$2.50; 8-in., \$4.00 each, net 	American Ice Chisei National Novelty Ice Breakers	# Keg 4,87%  # doz \$6.50, dis 10 %  # doz \$6.50, dis 10 %  # doz \$6.50, dis 10 %  # doz \$6.50, dis 20 %  ks. # doz \$6.50 net  ks. # doz \$6.50 net	Rakes. Cast Steel	dis
He Light Brassdia, 75 %	Chalk. White	P gross 55c net Flu	ined Fluter and Sad I ting Scienors	ron* dos 15.00, dis 10 %	White's Stiding Head Pic Duniap's Ring Picks Wood Head Picks, Sarger	ks # doz \$2.50 dia 20 % 	8 10 12 \$4,00 5.75 6.50 Malleable. 12 \$3.60 4.00	7.25 8.00
Loys.—Gray's Ratchet         # GOE \$4.00, GBS 15 %           Light Brass.         dla 75 %           Light Heavy         dla 508 k/k10 %           White Metal         dla 508 k/k10 %           Silver Chine         dls 208 k10 %           Globe (Cone's Patent)         dls 25 %           Abbe's         dls 208 k10 %           Vankee         dls 308 k10 %           Barton's         dls 408 k2 %           Taylor's         dls 25 k10 %           Brook's         dls 50 %           Cone's         dls 10 %	Blue. White Crayons	F gross occ net "Emp gross 13%c net Kevste	one Portable Forge C	0dis 20 %	Ice Mallets, Pickin Head Pick in Hand	# doz 1.85, dis 60&10 % # doz \$1.75 net	10 12 \$3.60 4.00	14 tee 4-40
Swiss	White Crayons Chiseis D. R. Barton Tool Co. (all kinds) Socket Framing, Crossman Buck From Buck From Mig. Co. Merry Mig. Co. Witherby Tool Co. Douglass	dis 55&10 % Piated	A 1, Rogers & Bro	dis 40&5 % cash	Kitchen Ice Tongs	Maileable # doz 1.50 net # doz 2.25 net # doz \$2.00, dis 331/4 %	\$3.60 Razer Siraps. Genuine Emerson Badger's Emerson Badger's (not Emerson). Evans' Imitation Emerson Hunt's. Chapman Torrey's. Saunder's. Rivets.	
Yankee dis 3,5410 %   Barton's dis 4,042 %   Taylor's dis 2,5410 €	" " Hart Mfg. Co	dis 65&5&10&2 %  Line foot 10 %  Enter	it and Jelly Press prise Mfg. Co	ses dis 20 %	Retties. Brass, 7 to 13 inches i	inclusive? B 35c net es	Evans'	₩ doz \$2.75, dir
	Douglass' Firmers, Crossman Buck Bros Hart Mfg. Co., extra	dis 70 % Burnis				dis 60 %	Chapman	dis
Taylor's Bronze or Plated Lever	MACHERAL		rking	dis 45&10 %	" Shoe " Bread Wadsw	dis 15 % dos \$1.50, dis 15 % orth's"	Rivets.	-0
Brook'sdis 50 %	" Corner.	dis 70&5 %   Wire			Table and Pocket		Rivets, Iron and Tinned. In bulk, new list of Jan. 10, 18; Copper Rivets and Burs	12 13 14
Western dis 25&10 % Common Wrought dis 20 % Common Wro	Tanged Firmers extra.  " Butcher's\$5.00 g  " Newbould's\$5.00 g  " Spear & Jackson's " Buck Bros (Shank)	\$5.25 to £ gold Nail a: . 5.50 to £ gold "Bee'	nd Spike	# gross \$12.00, dis 45 %	Base—Common	dis 30&10 \$dis 10 \$dis 10 \$dis 05&5 \$	Rivet Sets	rs.
Western	" Spear & Jackson's " Buck Bros (Shank) Clamps.	5.00 to £ gold "Dian Double	nond" Gimlets e Cut, Shepardson's	dis 20210 %	Door, Mineral Por. Jap'd		Charles and Charle	
" Sargent's	Iron, Providence Tool Co.'s, Wrt. Iron.  Adjustable, Gray's.  Lambert's	dis 25 %	" Ives'	# doz \$16.00, dls 40 \$	Furniture, Plain		Rollers. Barn Door, Sargent's list	dis 70
Texas	" Stearns'	dis 15 % Tinned	d and Enameled y, Howe's "Eureka".	dis 40 %	Picture (T. & S. Mfg. Co.). "Sargent's	dis 60& 10 %	Acme (Anti-Friction)	cturers' List, Jan
laws. smiths', Common	Iron, Providence Tool Co. 3, Wft. Iron.  Adjustable, Gray's.  Lambert's.  Snow's.  Hammer's.  Cabinet, Sargent's.  Carriage Makers', Sargent's.  Cord and Tape (T. & S. Mfg. Co.).	dis controllo %dis controllo %dis son Sarger	ndstone Fixtures.	dis 70&10&10 \$	Ladies. Melting-Hart's Sargent's		maniia	nch and larger w 
crs	Clips, Axle. Norway or Best	dis 60 % Hart h	Ifg. Co., Nos 9 to 11		" Reading " Monroe's Pa	atent # doz \$4.00, dis 20 %	Stair Merican Patent. Rollers. Barn Door, Sargent's list. Novelty. Rope. Manufa. Rope. Manufa. Tar'd Rope. Lath Yarn. Hay Rope. Sisal. Hay Rope. Hay Rope. Sisal. Ghapin's. Standard. Stephens. Willis. Thrail & Son. Steart's. Add Irons.	
nd Fasteners.—Mackrell's	Cockeyes1½ in., 28c.; 1½ inch, 33c.; Cocks, Brass. Racking, L. F. & C. list	; 1% in., 37c, net Rick i	nmers. avdole's (new list on .		Tiumplanna	ntent	Sisal½ ii	nch and larger # % inch # 4 and 5-16 inch #
burn's Patent	GlobePlain Bibbs	dis 55 % Hamm dis 50 % Huma dis 59 % Chene	onds' (new list) son & Beckley Mfg. C y's Steel Face and Cli	dis 20 @ 25 % dis 33 % %	Peerless	10 5, 10 doz \$11.75, dis 10&10 %dis 10&10 %dis 10&10 %	Rules- Chapin's	Boxwood. Iv
man's Patent, 1/4 in. and larger	Ale and Beer, L. F. & C. list	dis 20&10 % Verree Magne	all Steel	A. E. Bell Face)	Police. Small, \$7.50; Med.,	0.00; Large,\$12.00, dis 19@20 €	Stanley	dis dis 60, dis
% in % % 30c., dis 10&5 % cks.—Burr & Co	Board and Box	dis 20@25 % Warns dis 25 % Has p. \$10.50, dis 25 % Provid	or & Noble's.  Id Cuffs and Leg lence Tool Co.'s Hand	rons.	Draw Cut, 14 inch Enterprise Mfg. Co	each \$65.00, dis 20 %	Stearn's	dis 50&10 % dis
e, Rope and Iron Strapped (The Penfield W.)dis 40 5 vy Rule and Level Codis 335&10 2	American (Enterprise Mfg. Co.) French Steel The Swift (Lane Bros.)	dis 20 %	" Leg lr	ons, \$25 \$\times doz} dis 10 % dis 25 %	Porcelain Lined Eureks, Tinned		Self-Heating Tailors'	
wers. one Portable Forge Codis 20 %	Compasses, Dividers, &c. Compasses	dis 35&10 % Door o Nos.	r Thumb Latches-	18 1 35 1.50dis 65&10 %	Sammis' PatentNo. 1	1, \$7.50; No. 2, \$12.00 %	Enterprise Patent Cold Handl Combined Fluter and Sad Iron	ie
ton Barrel, Shutter, &c	Dividers	dis 35&10&3333 % Bronze s.dis 35&10&10% Jap'd	n's Latches ed Iron Drop Latches Store Door Handles—	doz \$0.85@ \$1.00 net	Cotton Chalk	dis 24 %dis 50 % 1, 2, 3, \$6.00, \$6.50, \$7.00,	Baeder & Adamson's Flint, oo t	10 1%\$4.25 % rea 1% & 3. 4.75 % rea norted 4.25 % rea
g Butts (Humason & Beckley Mfg. Co.) dis 40&10 % ght Iron Barrel	Cook's. Excelsior. Miller's Patent.	dis 50 % Barn I Wroug	late, 750	per doz \$5.00, dia 65&10&10 \$	Mason's Linen. Wire Clothes, Gai d	dis 20 %dis 20 %dis 20 %	Star Emery. •	7.25 F ream \$6.50 @ 11.
" Shutter (Staniey's list)	Coopers' Tools. Bradley's	dis 15 @ 20 % Surfac Flush	e Chest, Sargent's lis Chest	dis fodrodro g	Locks and Latches. Cabinet—Gaylord . Eagle	dis 25&2 %	Sash Cord. Common	P b 16 @
B.K.Flush, Comm'n, Stanley's. dis 15&10 %	Corkscrews.—Humason & B Corn Knives and Cutters.—Bradi Crow Hars.	ley'sdis 10 Saw as Boynto	on's X Cut (Loop)	dis 35&10 %	Barnes & Deits. Bridgeport Lock	dis 30 % COdis 25 & 2 % dis 25 %	Silver Lake Russia Flax White Cotton	
ght Iron Barrel	"Cablnet, Sargent's." "Carriage Makers' Sargent's." "Cord and Tape (T. & S. Mig. Co.). CHips, Axle. Norway or Best. Superior. Cacks, Brass. Racking, Brass. Ra	B 5c North	carolina Handle Co.	18 135 1.50dls 65&105 27 net 28 dor 80.85 @ \$1.00 net Nuts, \$1.00   Plate \$0.95 per dor \$5.00, dls 65&10.85 per dor \$5.00, dls 65&10.85 dls 60&10.85 dls 60&10.85 dls 60&10.85 dls 26.85 dls 26.8	Round Key	Jan. 1, '77dis 40&10 %	Hay Rope  Rules Chapin's Stanley Standard Stephens Willis, Thrall & Son. Steephens Willis, Thrall & Son. Steephens Self-Heating Self-Heating Tailory Enterprise Patent Cold Handl Coronned Fatent Cold Handl Sand Fatent  " " " " " " " " " " " " " " " " " " "	
Sorway Iron - Solis 79 5 R. B. W. (old list) dia 70 8 5 20 8 Philadelphia - dia 70 8 18 70 8 Coleman - dia 602 10 8 602 0 8 Shelton's - (old list) dia 708 5 28	Curling Irons, &c. 56, 56, 54 in., \$1.80, 2.00, 2.40	dis 10 % Hickory of \$6.50, dis 15 %	ry Firmer Chisel, asso larg	pried, * gross \$5.75, dis 24210 \$ pried, * gross \$5.25 pried, * 6.50	Farnes & Deits, Flat Key. Yale Lock Co., Flat Key. Shepardson's, Flat Key.	dis 30 %	Clark's, No. 1, \$10.00; No. 2, \$8.0 Ferguson's Walker's	o per grossdis
Shelton's(old list, dis 7085 \$ Am. Screw Co	Curry Combs. Curry Combs.	08 7.50, dis 20 % Socket	Framing assorted, F gross	re, " 7.50 orted, " 4.50 dis 40 %	American Lock Mfg. Co Plate F. Many's "Extension Cyl	dis 33\3 % dis 33\3 % dis 33\3 % iinder "\$10.50 \$\\$ doz, net	Hammond's Window Springs. Northup Window Springs. Sash Weights.—Solid Fyes	\$9.00 per gross,
*hila)	Fitch's (List of No. 240, \$1) Hotchkiss'& Kellogg's, Iron & Brass, old Hotchkiss' Novelty	list.dis 40&7/6 % File, as Auger,	assorted, # gross large.	3.50	Branford	OCES, &Cdis 60&10&2 %	Sausage Stuffers or Fill Miles.	L Als: No o aso,
Shelton's   (old liss, dis 708.5 5	Curtain Plus.—Silvered Glass. White Enamel.	g.co. dis 20&10 % Patent	Auger, Ives' Douglass'		Russell & Erwin Mallory, Wheeler & Co	dis 50&10&2 %dis 60&10&2 %dis 35&10&2 %	Draw Cut No. 4 Enterprise Mfg. Co	each #30.00,
oc. dis 65&10 % nds dis 60 and Rivet Clippers—Chambers dis 25 %	White Ename! Cutlery, Meriden Cutlery Co. (Table). Am, Miller Bro. S Cutlery Co. Humason & Cotlery Co. Naugenic Cutlery Co. New York King (Pockets.  New York King (Table).	net Anti-F	riction	# set #1, dis 20&10 %  dis 50&5 %  dis 70&10 @ 74&10 %  dis 40 %  dis 50 %  dis 50 %  dis 50 %  dis 50 %	" Mallory, Wnee " Wm. Wilcox &	ler & Co dis 331/665 % Co and 2 % for cash	Saws. Disston's Circular	
ing Machines. Upright. Angular.	Humason & Beckiey, Pocket Naugatuck Cutlery Co.	dis 25 % Novelt Challes dis 35 % 5 % cash Clima	nge. K (Apti-Friction)	dis 40 %	D. K. Miller Lo Merican Lock Romer's	ck Co	" Cross Cut	
with Augers 9.00 11.00 dis 40£10 % 11.00 dis	Dippers.	3-75 @ \$4-25, net	g Improved (Anti-Fr	iction)dis 70 % 10 % 10 % 10 % 10 % 10 % 10 % 10 %	Vulcan Hardwa J. H. McWillian Barnes & Dieta	ns. dis 20 %	Mill, Gang and h Cross Cut, Wood	Hulay
no Augers 4-75 0.25 dis 25 %	Dippers.  Britannia. Cocca, Plain. P doz \$\frac{1}{2}\$  Cocca, Plain. P doz \$\frac{1}{2}\$  Cocca, Plain. P doz \$\frac{1}{2}\$  Rimmed. P doz \$\frac{1}{2}\$  Rimmed. P doz \$\frac{1}{2}\$  Rimmed. P doz \$\frac{1}{2}\$  W doz \$\frac{1}{2}\$  Rimmed. P doz \$\frac{1}{2}\$  W doz \$\frac{1}{2}\$  Rimmed. P doz \$\frac{1}{2}\$  W doz \$\frac{1}{2}\$  W doz \$\frac{1}{2}\$  Rimmed. P doz \$\frac{1}{2}\$  W d	02 3.75, dis 20 % Henshi Judd's	aw'sList of 136 ch	CELORD.	Mallets.—Hickory and	rksdis 30 % Lignumvitsedis 10&10 %	E. M. Boynton's Lightning, Cro One-Man, all lengths Buck Saws (X Bar). Blilet Webs. Pruning. Wheeler & Clemson Mfg. Co. S Livingston's Butcher and Kitel	P dos \$15, dis 408
Nut Co	Embossed Gilt Leather Brass	dis 20 % Hotehi	kiss'ws'.	dis 10 %	Dixon's (P. S. & W.) Nos.	1 9 3 4 14.00 17.00 19.0030.00—dis 25 %	Wheeler & Clemson Mfg. Co.	Handdis
t & Co.'s	Door Springs. Torrey's Rod.	e doz \$2.00 net New Y	ork Wire	dis 50&10 %	Perry's Nos. 1 2 3	14.00 19.00 19.0030.00—dis 25 % 28.00 20.00 40.00—dis 30 % 4 4 6 rd 5 g rd 11.00 13.00 36.00—dis 20&10 % 1.00 15.00 150 150 160 20&10 % 150 150 160 20&10 % 150 160 20&10 % 150 160 20&10 % 150 160 160 20&10 % 150 160 160 20&10 % 150 160 160 20&10 % 150 160 160 20&10 % 150 160 160 160 160 160 160 160 160 160 16	Livingston's Butcher and Kitcl Framed Wood— Nos tol 102 10 Per doz810.00 8.50 10	hendis 1
n fig. Co. dis so is so is so it so	Johnson's Rod	dox 3.00, net Isaiah Shin	Bloodgling, Nos. 1 2 3		Woodruff's (P. S. & W.)	.Nos. 100 150 08\$15.00 18.00—dis 20&10 %	Per doz. \$10.00 8.40 10	03 104 10 0.00 7.40 6.2
Centennial" dis 40 % OB Ball (American) dis 25% to 8	No. 2, Medium, " # doi No. 3, Small, " # doi Challenge (Coil)— Nos. 9 7	Z 2.50 dis 10 % Lath Hunt's	ing, Nos. 1 2 3	dos 7.75 8.50 9.25 dos 7.50 8.00 8.50 dis 25 %	Draw CutNos. 5 2	40.00 51.00—dis 50&2 %	Saw Frames. White, Vermont. Red. Polished and Varnished Saw Rods	# doz #1.35, # doz #2.00, #10 list dia,
(T. & S. Mfg. Co.). dis 33½ %	Chairenge (COII)— NOS. 9  Japanned. V doz \$2.00 2.50  Coppered. V doz 4.00 4.50  Galvanized. V doz 3.50 4.00  Nickeled. V doz 5.50 4.00	3.50 Claw	Nos. 1 2 3		American	3 4 B 5	Boynton's Patent Stillman's Genuine	₩ dos 8
quality, no Augers. \$9.50 quality, no Augers. \$9.50 quality, no Augers. \$2.50 quality, no Augers. \$2.50 quality, no Augers. \$2.50 possible augers. \$2.50 possibl	Nickeled	7.00 Shing	gling, Nos. 1 2 3 Nos. 1 2 3				Common Lever	per dos \$2.00,
		c., see list. Shing	n's	dos \$7.50 \$8.00 \$8.50 \$9.00	" Genuine Tinned Ends Chase's Hard Metal	dis 60&10 % dis 40&10 % dis 30 %	Common Lever No. 0, \$8. Leach's No. 0, \$8. No. 1, \$8.50 Hammer, Hotchkiss Call' Co.'s N Bemis & Call Co.'s Spring Ham	iew Patdis
rass, Tichout's dis 40 % Corbin's dis 50 %	No. 5, Screen Door Size	# 2.50 dis 25 % Lath Broad	ing, Nos. 123	doz	Bush's Lincoln's Genuine Weed's	dis 20 g dis 60 %	4 Alken's Genuine	
bint, Narrow dis 60&10 %	Philadelphia	Collins	gling, Nos. 1 2 3	# doz \$0.00 \$6.50 \$7.00	Mortars and Pestles. Iron. Mortising Machines.	each \$20,00, dis 20 \$	Hart's Patent Lever.	₩ 4
nent Butts dis 54k10 % s Hinges dis 70k10 %	Drawing Knives. Crossman's No. 1	Lath	ing, Nos. 1 2 3 larton Tool Co	# dos 6.00 7.00 7.50	Nails. Nuts and Washers Square and Hoxagon	dis 625,610 5 dis 50,810 % dis 40,810 % dis 40,810 % dis 20 % dis 20 % dis 60 % dis 60 % dis 10 % eeach \$20,00, dis 20 % See Trade Report	Tea	# dos \$1c. dis 4
oint, Narrowdis 50\$10 \$  Brossi	Hart Mfg. Co., extra	lis 65&5&10&2 % Lathdis 60&10 % Half	Nos. 123 Hatchets. Nos. 123	2 dog 10.50 10.00 9.50	Table (Humason & Beckle, Blake's Pattern	y Mfg. Co.)dis 33½ %	"Hart's Patent Lever. Scales. Hatch, Counter. "Tea. Union Platform. Turnbull's. Brown's. Fairbanks'. Howe's. Eureka. Universal Family. Favorite Family. Sargent's list. Scrapers.	dis 20dis 20dis 20dis
Broad, Japanned dis 35&10 %  Joint dis 60% & 10 %  Japanned dis 62% & 10 %	Bradley's Adjustable Handle	dis 35 % Shing	gling, Nos. 1 2 3 Hatchets, Nos. 1 2 3	W CLOS #8.00 #8.50 #0.00	Oakum.	# B 854c	Howe's. Chatillon's Grocers' Eureka.	dis
With Acorns   dis 65&10 %	Douglass'.  Orills and Orill Stocks.	dis tokto % Claw Lath	ing, Nos. 1 2 3 d, Nos. 2 3 4	# dos 8.00 8.50 9.00	Oilers.—Zinc and Tin Brass and Copper	# B 85cc # B 75cc dis 45 % dis 45 %	Universal Family Favorite Family Scale Beams, Chatillon's list	
Nut Co	Breast P. S. & W	h \$7.50, dis 10 \$ Hay	Nos. 5 6 7	# doz 11.00 13.00 14.50 # doz 16.50 18.00 19.50 # doz \$20.00 net 	Olmsted's. Broughton's. Malicable (Hammer's)		Scale Beams, Chattiton's list.  Scrapers Sargent's list.  Sox, 1 Handle.  Defiance Box and Ship.  Foot.  Foot.  Providence Tool Co.  Screw Drivers.  Hart, Bliven & Mead, new list.  Douglass Mrg. Co.  Dission's.  Buck Bros.	dis dos \$5.00.0
on Mfg. Co.'s Fancy Butts— d Enameled Loose Joint	" Hotchkias. " Wilson's. " Miller's Fallseac	dis 20 % Wadsw. dis 20 % Him	vorth's ges. Vestern	# dos #6.25, dis 60#20 %	Prior's Patent or "Parago Ox Balls	a"dis 40 %	Defiance Box and Ship	dos 6.00 dis
n Mfg. Co.'s Fancy Butts- d Enameted Loose Joint. dis 6skto \$ d Enameted Loose Joint. dis 8skto \$ Piniss, Plais. dis 8skto \$ ' with Iron Acortis dis 7skto \$ ' with Silvered Acortis dis 5skto \$ wacoust iron. dis 4skto \$ LI. Narrow dis 3skto \$ Hroad dis 4skto \$ Joint Broad dis4skto \$  Joint Broad dis4skto \$	ingersoli's (old list)	dis 35 %	N. E. Reversible N. Y. State	. dos \$10.13, dis 60\$5\$10 \$ dos \$5,50, dis 60\$10 \$ dos \$7.20, dis 65\$10 \$	Faber's Carpenters' "Round Gilt Dixon's Lead	# gross \$5.25 net	" (Providence Tool Co Screw Drivers.	per dos 83
oint Narrow	Weston's  Moore's Triple Action  Whitney's Hand Drill	dis 20 @ 25 %dis 20 @ 15 %	utomatic	# doz \$12.50 dis 20\$10 \$	Picture Nails and Ka	die sokrok o	nart, Bliven & Mead, new list. Douglass Mfg. Co	dis
	Wilson's Drill Stocks	dis 10 %   4 5	Seymour's	dia soft to d	Porcelain Head	dis sociodio s	Disston's Patent Excelsior	

May 2, 1878.	
Stanley Ruic & Level Cos.,Black Handlesdis 35&10 Varnished H'10dis 4&10 Sargent & Co.'s	Coppered
Sargent & Co.'s	Tinned, Nos. o to 18market list, dis 30 @ 35  Tanned, Nos. o to 18
Round Head Iron "dis 50 Flat Head Brass, list Sept. 1, '75dis 55 Flat Head Brass, list Sept. 1, '75	Tinned Broom Wire, Nos. 18 to 25. dis 47% (a 50 Annealed Fence, 208. 8 and 9 dis 55 (a 57%
Hound Head Brass. list Sept. 1, '75	Galvanised Telegraph, Nos. 7 to 9
ag or Common Coach dis 65 Coach, Patent Gimlet Point dis 40 @ 45	Fence Staples No. 12 W b 10 Staples (Internal W b 7 @ 7%
fachine, Flat Head, Iron, Am. Screw Codis 25 Round Head, Iron, "dis 25	Stubs Steel Wire
	Galvanized  Steel Music Wire, Nos. 12 to 27. F B \$1.00, ne
fand Rail, Sargent's dis 25&70 dis 60&10	Clothes Line Wire, Galvanized F coil 35 @ 430 ne Wire Cloth. Clinton, green or drab, by the rollper sq. ft. 336 ne
ack, Bell Bottom. dis 20 dis 20 dis 40 dis 20 dis 40 dis 20 dis 2	Cluston, green or drab, by the roll per sq. ft. 3%c ne Wrenches. American Adjustable
Scythes. Blood German Steel, Grass # dog \$10.00	Baxter's Adjustable "S," dis 20 "Diagonal dis 20 Colling & Colling & dis 20
Silver " " Hoz 11.00 dis \$1.50 dis \$1.50 dis \$1.50 from list	Coes' Genuine
Excelsior and Granger. # doz 11.00 dis \$1.50	Girard (Malleable) dis 75,810 dis 50810810 dis 25 d
Filv Clipper. 13.00 from list adsworth's Grass. dls 40 5	Taft's Pattern dis 75.8 10 Davis Patent Duplex new list, dis 25.
ash (T. & S. Mfg. Co.)	Wire Cloth   Clinton, green or drab, by the roll   per sq. ft. 3\( 3\) c ne   Wrenches   dis 45
ast Steel dis 75 & 10 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Cylinder or Gas Pipe dis 25&30 Alken Pocket (Bright)
ymour's Straight Trimmers	Universal, Cog Wheels, No. 21/4
arnard's Lamp Trimmers# doz \$3.7 inners'dis 20 5	Crown No. 2
all's Pat. Solid Steel Bentgold, net	" No. 3 69.0 Eureka, No. 1 57.0
Per dos	Novelty, No. 10, with Cog Wheels
R. & E. Hst	No. E, for Set Tubs
"Russell's Anti-Friction dis 50&2 9 Idling Shutter, R. & E. list dis 50&2	"No. 1, Wood "Common Gear 54.6 Peerless, No. 2
Sheaves	No. 31. 71.0 No. 21/6. 60.0
Shevels and Spades.   dis 3245	Stamped Tinware.
owland's dis 50 5 imball Shovel Co. dis 20 @ 20& 5 5 dd Colony	Stamped Tinware. Common Stamped Ware, L. & G. List, April, 1878, dis 50&10 Stamped Deep and Retinned Ware, L. & G. List,
Iddleboro' Shovel Co	April, 1878
unning's Snovels and Scoops	BEDITATO
xford Patent dis 40 5	METALS.
on and Brass Head, R. & E. list	IRONDUTY: Bars, 1 to 11/6. F B; Sheet, Ban Hoop and Scroll, 14 to 13/6. F B; provided, that non
quare Frames, Round Cornered, by casedis 70	per cent. Fig, #7 # ton; Polished Sheet, 3c. # 15
Spoke Shaves. dis 55210 9	Railroad. 70C. # 100 Bs. Boller and Plate, 1%c. # B.
on. dis 33\\ dis 30\\ dis 30\\ dis 30\\	Foundry No. 1
Less than a case	HONDUTY: Bars, 1 to 1½c. # B; Sheet, Ban Hoop and Scroll, 1½ to 1½c. # B; provided, that non of the above Iron shall pay a less rate of duty than a per cent. Pig, #7 # ton; Polished Sheet, 2c. # B Wrought Scrap, 88 # ton: Cast Scrap, #6 per ton Railroad, 7cc. # 100 Bs. Boller and Plate, 1½c. # B. Pig Iron-American.   Foundry No. 1
earn'sNo. 1, \$15.00; No. 2, \$12.00 \$ doz, dis 40 \$0.00;	Eglinton # ton 23,6 Coltness # ton 25,6
Speens. nged Iron	Rails.
isting dis 40°	Old Rails
Boardman's Sons, At. dis 40% & 5 2 cast	Wrought Scrap, from yard \$\psi ton 21.00 \( \text{@ 22.0} \) Bar Iron, from Store.
1840&5   500   1840	% to 2 in. round and square
olmes, Booth & Haydens	Refined Iron:  % to 2 in. round and square
amond Steel (L. Boardman's Sons). dis 30&5 ; in (P. S. & W.), Teas. \$1.50 \rightarrow gross, ne	Refined Iron:
ouglass'  Species  Species  Inned Iron  dis 25  Species  Inned Iron  dis 40  ritannis  dis 40  ritannis  dis 40  ritannis  dis 40  ritannis  dis 40  dis 40  gers & Hro. A i. dis 40  gers & Hro. dis 40	Swedish Iron: Ordinary sizes.
Stocks and Dies	Sheet Iron. Common R. G.
"Ax Stone. P b 8c dis 30&10 9	Nos. 10 to 20
and stone. # 5 6c, dis 30kto 9	25 to 20. # fb 356c 454 27. # fb 356c 454 28. # fb 4 c
** Slips, ** No. 1, # 10 500   500	Galvanized, 14 to 20, B. B. 9 b 534c; 2d qual, 4 b 54c 21 to 24, 9 b 7/4c; 9 b 0
urkey Oil Stone	27 " P B 34c; " P B 64
rindstones, Family, Loring's dis to	Ordinary sizes    Sheet Iron.   Common   R. G.
Stocks and Dies.	COPPER.—Durv: Pig, Bar and Ingot, 50; Old Copper, 40 \$\mathbb{B}\$; Manufactured (including all articles of which Copper is a component of chief value), 45 \$\mathbb{S}\$ a
ising Sun	which Copper is a component of chief value), 45 % a valorem.
rondis 50%; full cases, dis 50&10% (2%) fickel Platedadd \$2.50 @ \$4.00 # doz, net ( casl	valorem. American Ingot
ar Try Squares and Bevels. dis 35 isston's Try Squares and T Bevels. dis 45 dis	Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., \$ sq. ft.
rinterpottom's fry and mitre	Braziers' Copper, 10 oz and 12 oz., # sq. ft # b 32 Lighter than 10 oz. # sq. ft # b 34 Circles less than 84 in 1 diameter.
Tacks. Haif Weight, Americandis 75	Circles 84 in. dismeter and over.
Full " dis 30 Tinnet dis 30	Sheathing Copper, over 12 oz. # sq. ft # b z
" Tinned dis 40 : 33/3 %	Copper Bottoms. W B 3 No Copper is Sheathing except 14x48 inches and no to exceed 4 ox to the gr. ft.
" Copper	14x48, by the case w sheet
4-8ths and longer, 8c; 314-8ths oc ₩ B.net runk, Clout and Finishing Nails—	14x48, by the case
add longer, 8c; 3½8ths 9c ₩ m.net runk, Clows and Finishing Nails—15 ½ % % 1 11 ½ in. and over. 25 20 17 15 17 110 ₩ m	14 and 16 oz. and heavier. W B 34c By the case. W B 2
Tap Borers. ommon and Ring	Boiler Sizes. 7 ln., 14x52. 8 ln., 14x50. 9 ln., 14x60.
ouble-Pointed Tacks         dis 4087;           Tap Borers.         dis 20810           ommon and Ring.         dis 20810           rese Tap Borers.         dis 10810           nterprise Mfg. Co.         dis 20           Tapes, Mensuring.         dis 20           merican Flask and Cap Co.         dis 404°s.           ddy's.         dis 500°s.           pring Tapes.         dis 20810           The runnature.         dis 20810	14 and 16 oz. and heavier. W m 36c By the case. W m 3 (And all sizes not over 20 in. wide.)
merican Flask and Cap Co	14 and 16 oz. and heavier 7 to 3
Thermometers. dis 25&10 in Case	Brown & Sharp s Gauge the Standard for Meta; O English Gauge the Standard for Wire. BRASS MANUFACTURESS' PRICE LIST. January 1, 1878. Cash prices for Roll and Sheet Brass. For less qua- tity than 100 Bs. add sc # B.
Tebrace Cutters, nterprise Mfg. Co. (Champion)	BRASS MANUFACTURERS' PRICE LIST. January 1, 1878.
ll Iron # doz \$10.50, dis 40&5 ashus Lock Co.'s # doz \$18.00, dis 50	total annual and annual and annual an
pring Tapes. dis 24&10 Thermometers. dis 60&10&10 Thermometers. dis 60&10&10 Tobacce Cutters. dis 90&10 Need Bottom # doz \$12.00, dis 30&10 Il Iron. # doz \$10.50, dis 30&10 Il Iron. # doz \$10.50, dis 30&10 Il Iron. # doz \$10.50, dis 30&10 Toe Culks. # doz \$10.50, dis 50 Toe Culks. # b rec. dis 10 Tinners' Tools and Machines. Iachines (P. S. & W.). dis 15@10 tools (P. S. & W.). dis 15@10 Traps. dis 15@20	All Nos. not thinner than to No. 28, wider than 2 in., not wider than 14 in. All Nos. to No. 28, inclusive, and widths over 14 to 20 in., inclusive. All Nos. to No. 28, inclusive, and widths over 20 to 38, inclusive.  The advance on each No. above Nos. 28 to 38, inclusive.
Iachines (P. S. & W.)	All Nos. to No. 28, inclusive, and widths over 14 to 20 in., inclusive
ame, Newhouse	
Biake's Patent	All Brass thinner than No. 38 is Platers' Brass, at5 Sheets 24x48, and all sheets cut to particular sizes
Cols (P. S. & W.)   dis 1(4)30	# h advance on each No. above Nos. 28 to 38, inclusive.  All Brass thinner than No. 38 is Platers' Brass, at 5 Sheets 24,28, and all sheets cut to particular sizes and lengths under 30 in., in width wider than 2 in. 3 Sheets wider than 30 in. and under 40 in.  Circular Sheets, in diam. from 4 in. to 14, inclusive 3 or 10 or 14 20, 14 or 15 or 14 and 15 or 15 or 16 or 17 or 18 or
Patent Self Setting # doz \$2.50, dis ro Catch-em-alive # doz \$2.50, dis ro	do in. and over.  Circular Sheets, in diam. from 4 in. to 14, inclusive a
tat, "Decoy" per doz \$10.00, dis 10	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
lat, "Decoy" per dos \$10.00, dis 10 Traweis. Othrops Brick and Plastering dis 20 Juston's Brick and Plastering dis 20 Juston's Brick and Plastering dis 20 Juston's Brick dis 20	LOW BRANK.
Clement & Maynard's	4c F m more than High Brass, Gilding Metal, 8c F m more than High Brass. In Bars
Brades: Brick and Plastering	Platers' or Gold Metal Sawed Planed or Polished For stritting.
Triers. Butter and Cheesedis 25	Metal in width 2 in. to 1/4 in. to No. 28, inclusive, 10.
Tuyere Irons. Vulcan Pattern	Motal in width a in to vin thinner than No at an
<ul> <li>Solid Box, Trenton</li></ul>	advance.  Metal, in width 1/2 in. to 1/4, inclusive, not thinner the
"Orown" (A. H. Hildicks) 40 to 100 lbs., 15 currency, dis 20	dvance.  Metal, in width ½ in. to ¼, inclusive, not thinner the No. 28, 2c. ¥ advance.  Metal, in width ½ in. to ½ thinner than No. 28, 9c.   Badvance.
Paraliei, Parker's	Metal, in. in width and less, ioc. F B advance. Any of the above widths cut to particular lengths, ad
Howard's dis 25 Sargent's dis 60&10	7c. W B. GERMAN SILVER MARKET METAL AND WIRE. MAPKet Metal. Wir
Valcan Pattern	7c. 4 9. GERMAN SILVER MARKET METAL AND WIRE.  Market Metal. 4 per cent., 12 inch, to No. 26
Fisher & Norris dis 15&10 Buffalo dis 25	10
Fisher & Norris	German Silver Sheets over 12 in. wide and weighir more than 16 Bs., \$2.25 \tilde{F} B. Advance 2c. for each additional inch in width about
Stearn's dis 20&10 Hopkins' P dos \$17.50, dis 10	Advance at for each additional inch in width above 12 in., and 20. It is not such thinner than Nos. 26 is 36, inclusive
Lowell Hand Vises	
Washer Cutters.	German Silver Scrap one-third less than net price of in Market Metal. German Silver Turnings, Filing and Chips, half the price of Scrap.
# dos \$12.00, dis 10 Johnson's # dos \$12.00, dis 20 Penny's # dos \$14.00 and \$16.00 dis 20 Penny's # dos \$14.00 and \$16.00 dis 20	High Brass. Low Brass. Coppe No.c to 20
Washer Catters. Johnson's.  Jo	No. o to 20
Protective Ventilator Co. 8	\$\begin{array}{cccccccccccccccccccccccccccccccccccc
Brass and Copper List of Jan. 1, 1978 dis 10	\$ N0.24
Mos. to Go an dis for G fold	NO.27

T	H	E	I	$\mathbf{R}$	O	N	A	G	E
16 M	No.30	******			-55		-59		.69
35 % %	No.32 No.33	*******			.59 .63		.67 71		.95 .81
40元	Sprin	ag Wire	2C ₩	m adv	ance.	i Wire	ce per de l'ence d	adva	nce
% % 1%C	Fanc Wire,	ind Wire	re. not le	ons the	an ioc	P m ad	lvance o	of Ros	and
100 100 100		s Rods,	No.	8 and	small	er not	less th	an 2 f	eet
old 150 160 net	not les Wire	s than :	ds le	lengt ss tha	hs, 400	et lengt	than N hs, spec	ial rai	tes.
net net	Comm	on Plai	n Bra	MISCE 88 Pai	LLANI LEAR	COUR.			0.40
net	tright r	on Plat Door Ra Brass Sc	гир						13C
15 % 20 %	ENCLAS.						orice of ded aft	Scrap	15e
20 % 45 % 10 %									
10 %	Plain	to No. 20 above 3	inch in	usive,	abov	ce on	to 3 in	each	.50
10 %	Num Nos. 24	ber. 1, 25, 26,	four	cents	adva	nce on	List for	each	
25 % 25 % 20 %	Above Plain,	No. 26, 14 Inch.	speci	al rate	9S.		List for		.70
30 % 10 % log.	All Ma Price		rawi	Tube	a, 5 ce	nts ad	vance or	List	1.60
0.00 3.00	Fancy Englis	Tubing h. Scote	to No	0. 20 i Exti	a Pa	terns l	ancy T	ubing	48e
4.00	Tubing	g Sawe	d or	Cut 2	to 4 f	eet lon	g, 2 con	ts ad-	•53
9.00 7.00 0.00	unde	er 2 feet					ional cu		
3.00 4.00 6.00	Plain.	ndrei D	nce.	ZING	TUBI	none	t.		.22
4.00	Scoten	and E	GEF	atter	ns	R TUBING	.—dis r	0 %	.31
3,00 1,00 0,00	6 "								.95
	12 "15 "15 "16 "16 "16 "16 "16 "16 "16 "16 "16 "16								1.40
10 %	18 20 STEE	LDi	TY:	Bars	Ing	ots, Si	ieets ai	nd Co	1.55 1.56 oils,
10 %	cent	ed at 7 cs, and n	cents ot ab	ove II	or un	der, 24 ts ₩ 15 ; way Ba	over II,	; ove	nts
	Raily that Bess	Metal c	rs, in	part	Steel	made	from Iro	rovid on by	the
and	desc	ription,	Am	be el	assed u Ca	as at Stee	neets al		150
one	Spring	geneous							.7C
n; on.	Machin	nery (ro	und a	and sq	uare)				539C . 9C
8.50 7.50 6.50	Sheet.	late, mi	il and	mula	му				16c 6½c
4.25	11	cir	cular	as to Chro	size.	teel.		18 @	30C
5.00	Fool, e	xtra fir	ie				\$7 1 \$7 1 \$7 1 \$7 1 \$7 1	0 14 (9 0 40 (9 0 8 (9	750 90
6.00 5.00 9.00	Gun of Engli	nery r Homo sh Ste	gene	ous	ie in i	rold, ne	£.	b 8 @	160
2.00	66	Ext Rou	t Cast ra Ca ind M	st	ery, (	last	t.	新田山	53-66 53-66
1 90	86 66	Swa Beat Blis	t Dou ter, n	Cast ble Sh st qua	ear			(a) (b) (c)	%e
2.10	Germa	n Steel	Best ad q	uality				P B I	te oe
2.3C 2.3C	Sheet	Cast Ste	el, 18	t qual	ity			P B I	536e 436e
.50	ANTI	MONY	Y	ig #2	W top	bs: old	Lead,	3% to	140
an.	Pipe Spanis Germs	and Sh	eet, 2	%c ₩	ъ.		656 @	6%c g	old
	Amori	n					094	N 7C B	160
5360	Pipe Tin Li	ned Pip	e					c. dis	10%
6360	Shot	7		BAHU	Drop	7% B	uck, 3)41	e, dis	10 %
7160 9160 1140	TIN.	U	e ; C,	120 : I es, Sh	eets,	P D. Tagger	and Ter	ne, 1.1	e P
dage con-	of, n	ot enun Pigs fre	nerat e. B	ed, 35 anca,	per co subje	ent. ad.	val. Ba	rs, Bl	ock ent.
of	Strait Englis	h				P 10	and Terms ; Manuval. Banty of 10 . F B 19 . 17 @ 18 . 16 @ 17 . ICES	curre curre	ncy ncy
ort.									
30C	I X 103	114 Pri	me Cl	harcos	al		8	.50 @	8.75
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340 310 380				COKE Best.	TIN P				
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not		Del	me C	how	NE PL	ATE.		Cok	е.
t 6c t 8c	I C 143 I X 143 I C 203	E20	5.87 @	8.25	5-7	12.00		5.50 @ .00 @ I	
330	I C 203	K28 K200 K20 M. F	@ @	17.00 19.00				**	**
36c	SOL	DER		No	. I, 95	6 G 110;	No. 2, and Pla	8% @	9140
350							6%		
38c	ZINC	n, on sp	v: Pi	g or	Block	, \$1.50	¥ 100 B	s. Sh	eet,
Old	Sheet.	Cask Open					¥ 100 B		6)6c
78. 18B	Pa	nor	Qt.	ek	0	d M	etal	9 1	80
			(De	aler's	Sellin	g Price	-)		
.330	White	linen r	n, No No	. I No. I				. 536 G	336
.37c	Secon	ds	ns.	No. 2.		******		314 6	334
.500 8	Soft w	roolens y baggi	ng					316 6	756
.360 .440 .450	Kentu	cky be paper	and s	craps				.5 6	136
.470 .390 .440	Kentu	n junk,	No.	0				-516 6	416 594
.440 .480 .510 .540		rope d shaki e collar						.2 6	
	Hard	White 5	Enve	lope.	0. 1			.7 6	
.460 .490 .420	Soft White	Shavit	igs, N	0. 2	0. 1			42.6	434
e. P	Imper	fection	No.	2, bes	t foldavy S	led shee	Es	414 6	21
e. P P B	Nowas	44 Li	ght					136 @	
han	Prints Pure I	Manilas	DOCK.	Mand				.156 6	236
e. ¥	Comn Binde	rs' Boar	rd Cu	ttings	- mare			.1 6 .1 6	154
add	Woole Satine	n Taile	r Clip	pa				.11 G	14 256
ire. 10.75 .83	Coppe	r, heav	y	Old	Mei			15 @	
1.19	Brass,	light heavy						814 (d) 1014 (d)	
i.31	Heavy Old La Tea L	cad, sol	ositio id	m				3 (9	354 294
6 to	Pewte	r, No 1						9 9	4
e of	Wron, Machi Light	ght Iron nery Ir Iron	n				per per per	ton i	8.00 2.00 13.00
ings		Plate Bars					per	on	6.00
per.	1300	p	air	nts	0	ils,	&c.		
-43 -44 -45	Black			12	aint			¥ B	300
-47	66	Ivory l	Drop.	fair.				12 @	150

	Asphantum Benzine Chaik  "Block Dryer, Patent, Am'n Frostings. Glue, White. Glazier, Flints, Zinc. Glum, Sheet. "Damar. "Shellac, English. "dark Litharge, English. "bowdered. Putty, in bladders. In bulk Rotten Stone, selected Lumbulk Spirits Turpentus. Whiting Spanish. Glas FRENCH WING.	s	cans, i	33 33	14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
" In oil to be the social	Single Thick.—		nt 60 %		
" Raw "	SIZES.	ist.	2d.	3d.	4th
mber, Burnt. 4 66 8c  "Raw 10 11 96 12 66 16 66  "Raw 346 66 746  "In oil 10 10 16 16 16 16 18 18 18 18 18 18 18 18 18 18 18 18 18	5 X S to 10 X 15	8,50 10,75 12,25 13,00 14,50 15,00 16,63 17,25 18,25 20,75	7.75 9.75 10.75 11.50 13.25 14.00 14.50 17.25 18.75	7.25 8.75 9.00 9.75 10.75 11.25 12.00 13.50 15.00	6.50
" Vermontin casks 11/90	Double Thick,—I			-	
ellow Chrome	8 IZES.  6 x 8 to 10 x 15	13.75 17.25 19.75 21.00 23.25	18.40	11.75 14.00 14.50 15.75 17.25	10.4
Inseed, Raw, in casks and bbls.	65 x 46 to 30 x 56. 30 x 52 to 30 x 54. 30 x 56 to 44 x 56. 30 x 66 to 40 x 66.  Sizes above 40 x 60.  Sizes above 40 x 60.  Glass more than 40 inches in length, and not me then 40 inches in length, and not menes.	25.75 27.75 29.25 33.25 per b will wide.	23,25 25,00 27,75 30,00 Ox ext be cha All siz	19.25 21.75 24.00 27.75 ra for tes ab	every for all ove sa

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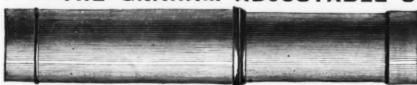
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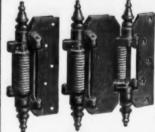
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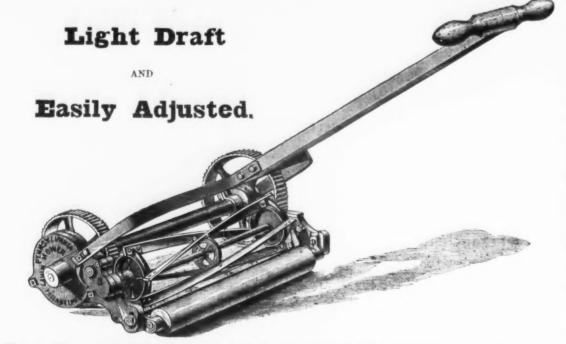
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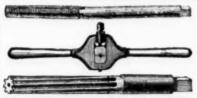


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	т	H
-	Stove Pellah.—Gem.	Nuts
0	Dixon	Straj Harr Skei Cast Fire
C	Carpet, Am. and Swedesdis 20 % 20640 % Leather Head net Copper	Singi
t t	Shoe Nalls— 48 and larger, 9c; 314.8, 914c W m, dis 90&10 x Trunk, Clout and Finishing Nalls— 5	No. 1 eor No. 2 cor
t is	Double Pointed Tacks dis 40%5 f Traps.  Graps.  Genuine Oneida—Newhouse. dis 30 f Im. Oneida—Newhouse list (ist qual.). dis 60 f Vises.—Solid Box, Trenton. # 5 11½ @ 12½ neck	No. 3
1 1 1 1 1 1 1	Girard (Coe's Pattern)dia 50&10 \$, case 50, 10&5 \$	No. 4 iro riv for Neck
222	Agricutural—  **doz 10 to., \$3 60; 12 in., \$5 40 net; case dis 5 %  Coes Genune	Wr Iro Sout ple Wag
**	Taft's "Wrot "	10 I
* *	Bright or Ann'd, No. 0 to 18.	10 I
8	No. 27 to 98	13 1 14 1 16 1 18 1 20 1
* * *	PITTSBURGH.	se ₩ len
D A M C	Merchant Iron.	5-16 36 7-16
	136 to 4x36 to 1 in1.80c   136 and 136x36 to 36 in .1.90c   43 to 0x38 to 1 in	Juni
2 2 2 2 2	194 to Alby to Fry III.   2.500   96, 94 and 52x56 to 96 III. 2.500     Rounds and Squares.   \$4 to 9-16 In.   2.600     1 to 1% In.   1.600   34 to 7-16 In.   2.500     24 to 28 in.   2.500   31 In.   2.500     35 to 4 In.   2.500   5 In.   2.500     4 to 5 In.   1.500   3-16 In.   2.500     4 to 5 In.   1.500   3-16 In.   4.800     5 In.	Steel This Sho This
***	Horse Shoe Bar—all sizes	Sh
4 4 4	156 to 34x14 & 5.16 in. 2c   56 & 36x14 and 5.162.80c  Light Banda.  1 to 134x14 to 3.16 in2.10c   54 and 54x14 to 3.16 in2.0c   54 and 54x14 to 3.16 in3.0c   55 and 54x14 to 3.16 in3.0c   56 and 54x14 to 3.16 in3.0c	A880 25 B 1216 Red
A NE W	Same sizes X No. 11 and No. 12 2-10c. extra.   Hoop Iron.	Oran Lith Dry
8 4 4	Hoop Iron.   56 & 9-16, Nos. 13 to 16. 4-50   56 & 9-16, Nos. 17 to 20. 4.80c   56 & 9-16, Nos. 17 to 10. 4-50c   54 & 11-10, Nos. 17 to 20. 4.4 30c   54 & 11-10, Nos. 17 to 20. 3.60c   54 & 11-10, Nos. 17 to 20. 3.60c   16. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	
d .	1-10c F B extra for each gauge lighter.	6 x
d a	74 to 134 in 2.00 134 in 2.600 94 to 34 in 2.400 134 in 30 Half Oval & Half Round 134 in 3.300 134 in 3.500 134 in 3.500 134 in 3.500 135 in 3.500 1	11 X 18 X 15 X 26 X 26 X
SK W W.	% to % in	26 X 30 X 30 X
	Half Oval & Half Round   \( \frac{1}{2} \) to 1\( \frac{1}{2} \) in \( \frac{1}{2} \) . 2\( \frac{5}{2} \) to 1\( \frac{1}{2} \) in \( \frac{1}{2} \) . 3\( \frac{5}{2} \) to 1\( \frac{1}{2} \) in \( \frac{1}{2} \) . 4\( \frac{5}{2} \) to 2\( \frac{1}{2} \) in \( \frac{1}{2} \) . 4\( \frac{5}{2} \) to 2\( \frac{1}{2} \) . 1\( \frac{1}{2} \) . 2\( \frac{1}{2} \) . 1\( \frac{1}{2} \) . 2\( \frac{1}{2} \) . 1\( \frac{1}{2} \) . 1	36 X
5 5	Plate Iron-2-16 to 16 in thick 2 600	26 X
10	Nos. 14 to 20. 22 Communicated From-Funiata.  Nos. 21 to 24. 250 No. 25 150 No. 25 No. 2	26 X 30 X 30 X 34 X 36 X
% # d		An glass
d et et	Roofing Iron, Corrugated or Crimped, Galvanized Common   Black.   No. 20	inch
86 87 86	Carnegie Bros. & Co.'s list.  Beams and Channels.  Solid Wrought Iron Beams, 3 to 104 in. x30 ft \$\mathbb{P}\$ 3 c	(2
35	Solid Wrought Iron Beams, 3 to 10\( \) in 30 ft \( \) \( \) 3 c \\ \( \) 12 in. by 25 ft 3 \\ \( \) 12 in. by 25 ft 3 \\ \( \) 15 c c c c c c c c c c c c c c c c c c	Tin 10x 10x 10x
* *	r in.xr in. to 5 in.x3 in	12x 12x 14x 14x
% 4 10	Equal Sided, rxr to 14x13 (in	20x 20x 20x 10x
22 23 18 17	Star Iron, 194114 to 4x4	Bio Bio La Bma
18 et	Fence and Brads,  10d to 6od \$2.50 4d and 5d \$3.25 8d and 9d \$2.75 3d \$4.00 6d and 7d \$3.00 ad 5.25	Lo
hh %h	\$4 in. 423 \$4 in. 5.50 134 4.00 \$5 in 5.50 134 3.50 \$5 in 5.50 135 3.50	Cos Sh Pla Bo
ĸ	1 5,00 134 3,25  Lining.  % in 7,00 % in 8,50  Tobacco Hhd. 8d	Bra 303 303 Sold Be
% 00 39	74 in	Ho Br
et	Stating.   Stating.	Bal
***	134 " 6.50   234 " 4.00 136 " 4.75 3 " and over 3.75 Casing and Box: 10d to 30d	No
***	4d 4.25   2d 6,25	Gal
***	Boat Spikes—All sizes. 3.25	Rus Per Am
MMMM	TEMES.—Notes that see to consecutive to describe the total see to the tota	Pig Ba
50	#teel, % to 2 in 15c 1	Co
****	Single and Double Shear Natiers—Same as Tool. Knife, Tap, Die, Mil Pick, Drill—Ordinary sizes13c Machinery Steel—Round. % to 2 in	1
50	## to 2 in 15/6c   7-3 and 4/4 to 5 in 10/4c 5-16 and 2/4 to 3 in 5/4c   7-3 and 4/4 to 5 in 10/4c 5-16 and 3/4 to 4 in 5/4c   7-3 and 3/4 to 6 in 13/4c 3-16 and 5/4 to 6 in 13/4c 5-16 and 5/4 to 6 in 13/4c 5-16 and 5/4 to 5/4 in 18/4c 5-16 and 5/4 in 18/4c 5-	6
00 %	1 to 4x½ to ½ in	1
NA	Soft Steel Center Plow, 4 to 16x3-16 to 1/2 in	H
et	Fork and Hoe	
et	Reaper and Scythe	M
et	German, 10 to 16 g Sc   Common C'st, 17 to 20 g. 100	A
WH CH	Common C'st, to to 16 g. 9c	1
et et	Sand Rolis and Plaions, large size 2560  Pipe Mill Castings. 3 c  Pipe Mill Castings. 4 c	Gen
et et et et	Spur and Bevel Wheels, large   3 d 3 dec	Se
et	Engine Castings, light	Pa
*	6 to 7 in. diam., 7 to 20 in. long. 6 c 8 to 15 in. 8 to 40 in. 5 c 15 to 24 in. 17 to 70 in. 6 c 24 to 31 in. 7 to 10 in. 18 to 24 in. 19 to 70 in. 19 to 10 in.	
1 %	Heavy Hardware, Bolts, Screus, Nuts, etc. Lewis, Oliver & Phillips, discount off Standard List. Carriage & Tire Bolts, ordinary orders 75, & 5 off net Stove Bolts. 408 5 off net Stevator Bolts. 30 5 off net Machine and Square Head Bolts. 508 10 5 off net Oosch and Lag Screws. 508 10 5 off net	6
et s ei	Elevator Bolts. 408:5 % off net Machine and Square Head Bolts. 508:10 % off net Coach and Lag Screws. 508:10 % off net	Th

Nuts a and V # % 6 Strap a	nd V						
Honnon	Wash	vashers in ers in lots Nuts and	n 25 % bos less than Washers in	xes, k one k n 5 m b	e P B eg eac	ex.	Nuts e, %c b ex.
Skein I	v Tee Bolts on W	th			.00012	40 W 1	net
Single from the m	Tree best	s, Neck selected l	Yokes and hickory, as patterns.	l Dou	ble Tr	rees, r mplet	nade e, in
No. 1 Se comp No. 2 V	lete,	Irons all	Yokes and hickory, an patterns. Single Tr Wrought. Single Tr Wrought. I'ree, Iron except Mal	ee, In	oned es oned	ich, 25	c net
No. 3 W Irons	all V	Vrought,	Free, Iron except Mal	comp	lete, Fer-	ien, 35	c net
No. 4 W Irons	all W	Single Trought;	ree, Ironed Improved	eomp	lete,	ec. 11, 70	
for w Neck Wrot	heel Yoke ight	to rub ago, Ironed	ree, Ironed Improved le acts as a ainst complete, id Ferrules	Iron, with	wt.	ich, 50	
Southe plete	Rings rn Pl , Iron	low Doubles all Wro	d Ferrules le Tree, Ir le ght tts s of 100 Set, Screw En	oned	es	ich, 60 ich, 50	c net
wagon to in.	long	Strap Bol For orders by 2-16 at	lts— s of 100 Set, Screw En	45&10	% dis.	holts	450
12 in.	64	14	66	99	8	61	. 55C
12 in.	60	9-16	86	04	8	11	. 70C
14 in. 10 in. 12 in.	66				8		
12 in.	66	8	66	44	8	**	. Boc. I
14 in. 16 in.	64	8	66	66	8	66	, 1.00
18 in. 20 in.	66				8		
sc ∦ se lengt	t for	each add	itional inc	h ove	r 14 fr	nches.	All
1	Chi	ains. Str	raight or	Twi	st Lis	nk.	
0.16		Relte	r & Mortor	a's Lis	t.		-9/-
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	B HO	rse Shees.	cm; mace	*******	pe	r keg,	\$3.25
Steel T	Mu mu	rse Shees. le " .			ре	r keg,	\$3.25 4.25
Thistle	we C	rse Shees. le " . alks d & Co.'s	Self-Shar		g Hor	per 75	ge lb.
Thistle Shoe:	we C	d & Co.'s	Self-Shar	penin	g Hor	per 7! se r keg,	ge lb.
Thistle Shoe Thistle	we Co	alks. d & Co.'s d & Co.'s S	Self-Shar elf-Sharpe	penin ning S	g Hor now	per 7! se r keg,	€c 1b. \$5.25
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Steel T Thistle Shoe Toe Ca Assort 25 % Ti 121/6 % Orange Lithar, Dry W	ed Ken Parin ead	White egg (all sirils, 100 m (	Self-Sharpe e and Re zes). Cases. in keg	penin ning S d Ler s, 7%c roc r%c	g Hor pe now	per 75 se r keg, per	\$5.25 5.50 lb. 8e 8e 8e 9e 7 lgc. 9 lgc. 7 lgc.
Steel T Thistle Shoe Toe Ca Assort 25 % Ti 121/2 M Orange Lithar, Dry W	ed Ken Parin ead	White egs (all siris, 100 ft) (eral.	Self-Sharpe e and Re zos) Cases in keg	ming S d Lei s, 7%c rec r%c r%c r%c r%c r%c r%c r%c r%c r%c r%	g Hor pe now	per 75 se r keg, per	\$5.25 5.50 lb. 8e 8e 8e 9e 74ec. 94e. 74ec. 74ec.
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Steel T Thistie Shoe Thistie Shoe Thistie Shoe Toe Ca Assort: 25 B Till 124 B	we C we wood a seed K of the s	alks.  White egs (all size)  white egs (all size)  eral.  Lead  With  Size.  X 15.  X 24.  X 50.  X 36.  X 44.  X 50.  X 50.  X 50.  X 44.  X 50.	Self-Sharpe e and Re gentle Self-Sharpe e and Re gentle Self-Sharpe e and Re gentle Self-Sharpe in Keg "" indow G ket.—Disco ngle Stren.	penin ning s d Ler ning s d Ler ny 74c 10c 10c 10c 10c 10c 10c 10c 10c 10c 10	B Horoman A	per 7 heg, 1 per 7 heg, 2 per 7 heg, 1 per 7 heg, 1 per 8 heg, 1 per 8 heg, 2 per 9	\$5.25 \$5.25 \$5.00 \$6.00 \$6.00 \$6.00 \$6.00 \$7
Steel T Thistie Shoe Thistie Shoe Thistie Shoe Toe Ca Assort: 25 B Till 124 B	we C we wood a seed K of the s	alks.  White egs (all size)  white egs (all size)  eral.  Lead  With  Size.  X 15.  X 24.  X 50.  X 36.  X 44.  X 50.  X 50.  X 50.  X 44.  X 50.	Self-Sharpe e and Re gentle Self-Sharpe e and Re gentle Self-Sharpe e and Re gentle Self-Sharpe in Keg "" indow G ket.—Disco ngle Stren.	penin ning s d Ler ning s d Ler ny 74c 10c 10c 10c 10c 10c 10c 10c 10c 10c 10	B Horoman A	per 7 heg, 1 per 7 heg, 2 per 7 heg, 1 per 7 heg, 1 per 8 heg, 1 per 8 heg, 2 per 9	\$5.25 \$5.25 \$5.00 \$6.00 \$6.00 \$6.00 \$6.00 \$7
Thistie Shoe Thistie Shoe Thistie Shoe Thistie Shoe Toe Ca Assort 25 B Till 24 B Till 25 Til	we C we wood a seed K of the s	alks.  White egs (all size)  white egs (all size)  eral.  Lead  With  Size.  X 15.  X 24.  X 50.  X 36.  X 44.  X 50.  X 50.  X 50.  X 44.  X 50.	Self-Sharpe e and Re zes). Cases. in keg indow Gleet.—Disco	penin ning s d Ler ning s d Ler ny 74c 10c 10c 10c 10c 10c 10c 10c 10c 10c 10	B Horoman A	per 7 heg, 1 per 7 heg, 2 per 7 heg, 1 per 7 heg, 1 per 8 heg, 1 per 8 heg, 2 per 9	\$5.25 \$5.25 \$5.25 \$6.86 \$6.86 \$7.66 \$7
Thistie Shoe Thistie Shoe Thistie Shoe Thistie Shoe Toe Ca Assort 25 B Till 24 B Till	we C we wood a seed K of the s	alks.  White egs (all size)  white egs (all size)  eral.  Lead  With  Size.  X 15.  X 24.  X 50.  X 36.  X 44.  X 50.  X 50.  X 50.  X 44.  X 50.	Self-Sharpe e and Re gentle Self-Sharpe e and Re gentle Self-Sharpe e and Re gentle Self-Sharpe in Keg "" indow G ket.—Disco ngle Stren.	penin ning s d Ler ning s d Ler ny 74c 10c 10c 10c 10c 10c 10c 10c 10c 10c 10	B Horoman A	per 7 heg, 1 per 7 heg, 2 per 7 heg, 1 per 7 heg, 1 per 8 heg, 1 per 8 heg, 2 per 9	\$5.25 \$5.25 \$5.25 \$6.86 \$6.86 \$7.66 \$7

The Chicago Stamping Co., 72, 74 & 75 Lake St.)   Jan. 16, 1878.   Tin Plate.   Jan. 16, 1878.   Jan. 1878.	CHIC	AG	0.	
Tin Plate.—   14x20. IXXX. Ch' Best. 12 00     10x14. I.C. (Ch'R. Good.\$   14x20. IXXX. " 14 50     10x14. I.C. (Best. 700)   DG. 100 Plate " 70     10x14. I.C. (Best. 700)   DG. 100 Plate " 70     10x14. I.C. (Best. 700)   DG. 100 Plate " 70     12x12. IX. " 950   DXX. " 12 00     12x12. IX. " 950   DXX. " 12 00     14x20. IX. " 900   DXX. " 14 50     14x20. IX. " 900   IXX. " 92 0     14x20. IX. " 900   IXX. " 92 0     15x20. IX. " 900   IXX. " 92 0     15x20. IX. " 900   IX. " 900     15x20. IX. " 900     15x20. IX. " 900     15x20. IX. " 900     15x20. IX. "	(The Chicago Stamping   Jan.	Co., 72, 76 6, 1878.	d 76 Lak	e St.)
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Sheathing	20x28, IC, 20x28, IX, 10x14, IC, Coke Plates 14x20, IC, 10x20, IC	Best	**********	14 00 18 50 6 50 6 75 10 50
Sheathing	Large rigs 20c	Bars		22c
Section   Sect	Plantshed			
Section   Sect	Book	********	****** ****	25€
Smooth   Smooth   Smooth   Smooth   Smooth   Smooth   Smooth   Janista   J	No. 1	r		15c 14c 12c 30c 16c
No. 18 to 20	Common	mooth.	Smooth	Juniata 8 c 8%c
A 116 In sheets, ic higher  Lead.— Lead Pipe, in full colls 6 Pig. 5 c Lead Pipe, when cut. 6½ Bar 6 c Sheet Lead 650 x  dis 50 x	No. 16 to 2013c	No. 27	*********	8 % c
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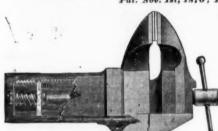
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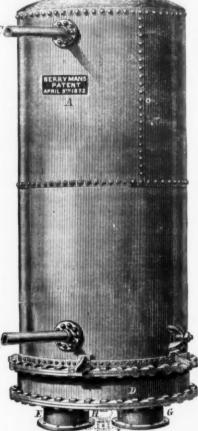


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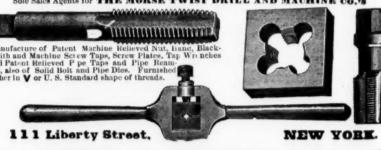
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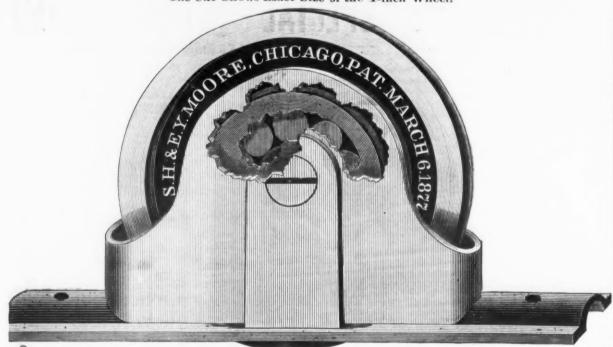
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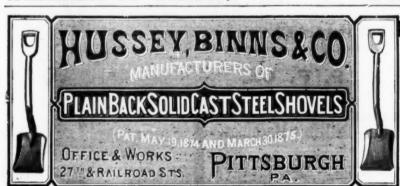
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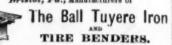
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France Drift, 

St. Louis Metal Market.
(Corrested Weekly by Mesers. R. Sellew & Co.)
Tin Plate (C. 1981), Best Char. 3 6:50   DX. 12\(\frac{1}{2}\)\(\frac{1}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(\frac
Sheet   Irob   Com b. Shi'uh em'th Shi'th No. 16 to 30.   298   38c   56c   1'2'   No. 22 to 24.   3   86c   56c   1'4'   No. 22 to 24.   3   80   5   6'   c   7'6'   1
No. 27
TailValifized Succes   Tail   dis 40 st
Extra in Bars
No. 1
Braxler's, 30x60, 14 to 100 lbs. Sheets     28       Braxler's, 30x60, 14 to 100 lbs. Sheets     30       " 10, 11 & 12 lbs."     50c       " 8 and 9 lbs."     32c       Tinned, 14x43, 14 and 16 oz.     3c       Botter Sizes. 14 and 16 oz.     5c       Gutter Copper, 30 and 24x72, 10, 11 and 12 bs, 8heets.     5c
Reservoir Copper, 16x00 and 16x60. Reservoir Copper, 16x00 and 16x60. Reservoir Copper, 16x00 and 16x00. See Ser Copper, Square and Round, 5 to 15 Inch. See Copper Bottoms. Succession See See See See See See See See See Se

Soldering Coppers ..... per. 400 No. 24. 430 25. 410 26. 450 37. Wire, -- Iron, Bright Market. Wire, -- Iron, Coppered Market. Fence, Nos. 7, Sand9 Trellia, Nos. 10 and 11. Hay Baling, Charcosi, No. 99 and 11.
Broom, Tinned, Nos. 18 to 2.
Fence Staples Per lo.

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11 kg 10 kg 10 c Sad Irons

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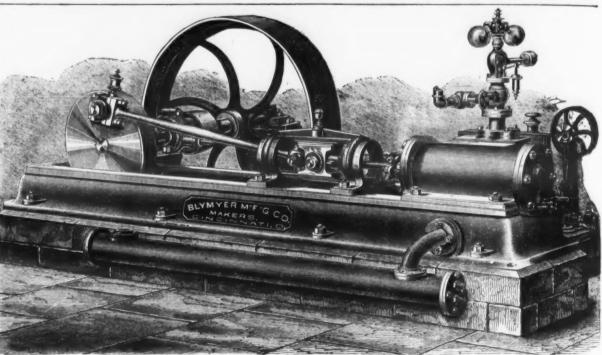
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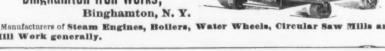
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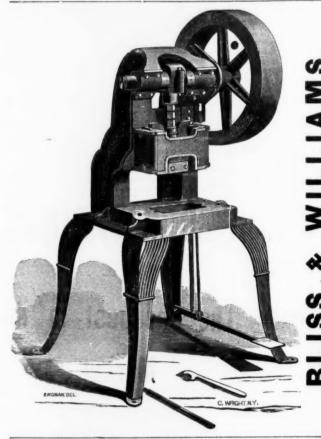
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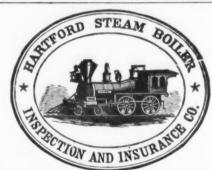
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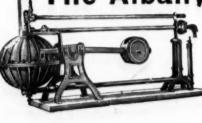
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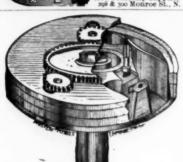
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